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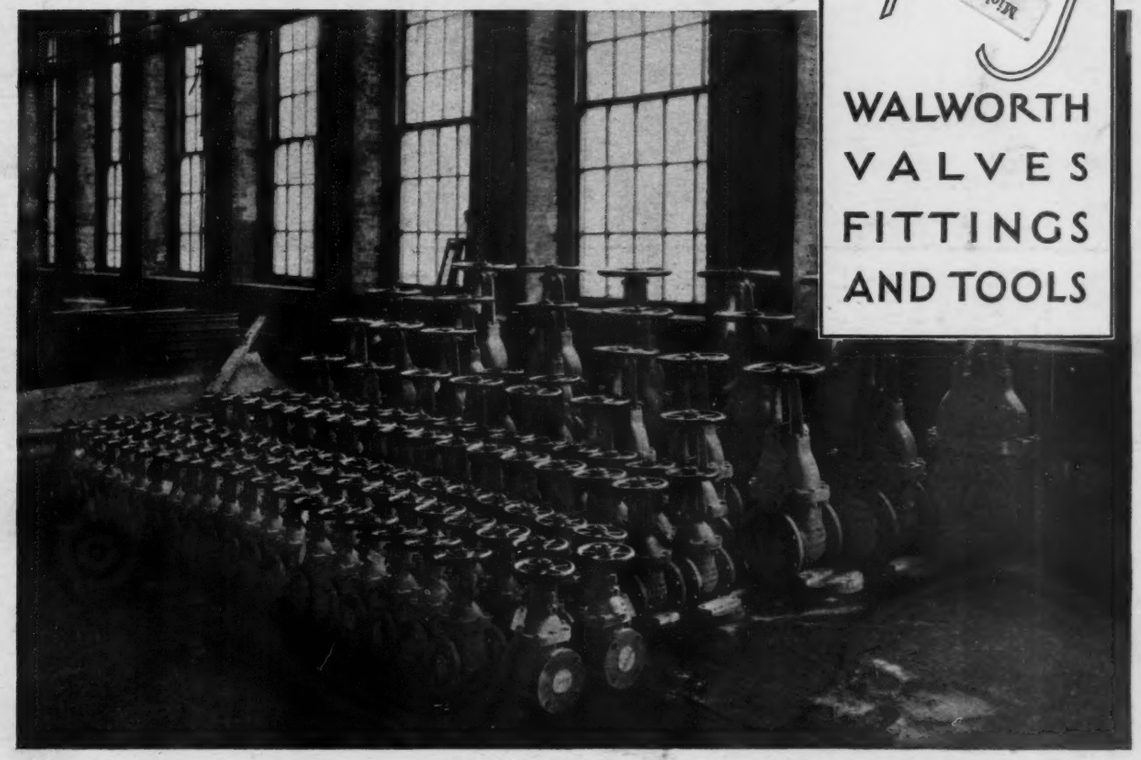
The OIL and GAS JOURNAL

PRODUCING REFINING ENGINEERING MARKETING

Published Every Thursday TULSA, OKLAHOMA, MARCH 20, 1930 $6.00 a Year

All-Bronze Valves

A Recent Walworth Shipment to an Oil Refinery



Specify WALWORTH VALVES FITTINGS AND TOOLS

Michigan State Library A1439-D-7-28-3

Here is a recent shipment of 3" to 12" Walworth All-Bronze O.S.&Y. Gate Valves to a large new refinery. The valves are used on lines handling treated crude gasoline from which sulphuric acid has been largely removed by washing. Walworth Bronze Valves resist the corrosive action of the slight amounts of acid left in the fluid.

for OIL

WALWORTH

Walworth Company, General Sales Offices: 60 East 42nd St., New York
Plants at Boston, Mass.; Kewanee, Ill.; Greensburg, Pa.; and Attalla, Ala.
Walworth Company Limited, 620 Cathcart St., Montreal, P. Q.
Walworth International Co., 11 Broadway, New York, Foreign Representative
... Distributors in Principal Cities of the World ...

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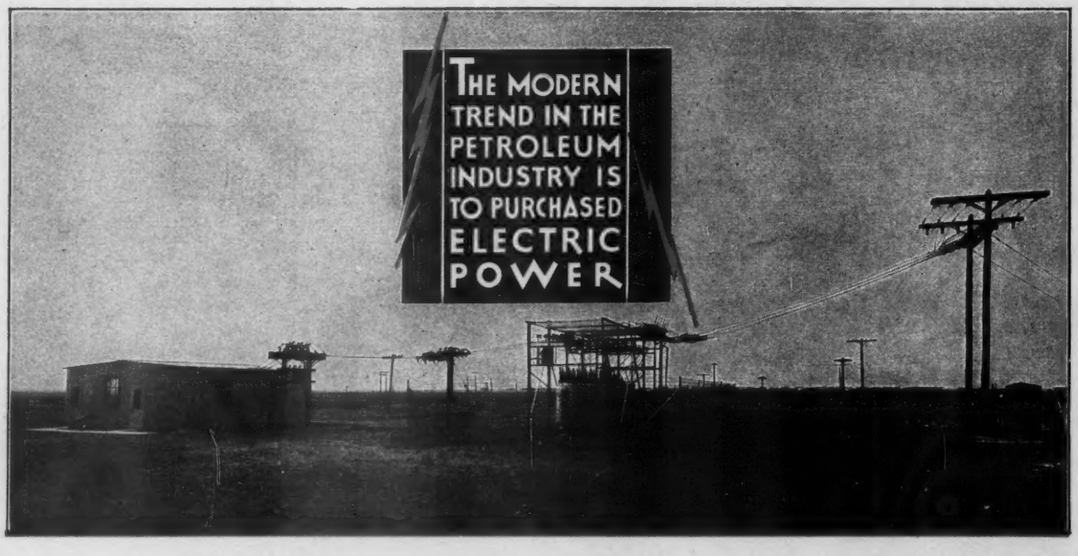


A Typical Atlantic Pipe Line Co., Electric Pumping Station

Here are Some of the Reasons for the Rapid Trend to Purchased ELECTRIC POWER for Pipe Line Pumping

- -- lower installation cost
- -- lower maintenance cost
- -- lower labor cost
- -- lower total cost per barrel pumped
- -- greater over all efficiency
- -- dependable service
- -- reduced investment hazard

Let Us Give You the Details Without Obligation

TEXAS POWER & LIGHT CO.

General Offices: INTERURBAN BUILDING--DALLAS

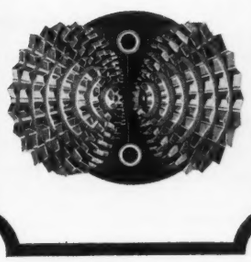
Providing for the Texas of Today—
Planning for the Texas of Tomorrow

Another SPENGLER Triumph

Patented

Now you are offered a superior ROCK BIT of SPENGLER heat-treated alloy steel that has attained new records in strenuous tests recently made in the Oklahoma City Field.

More hole in less time—because the dual water course construction provides a cleared surface for cutting, and assures less friction heat on the cones.



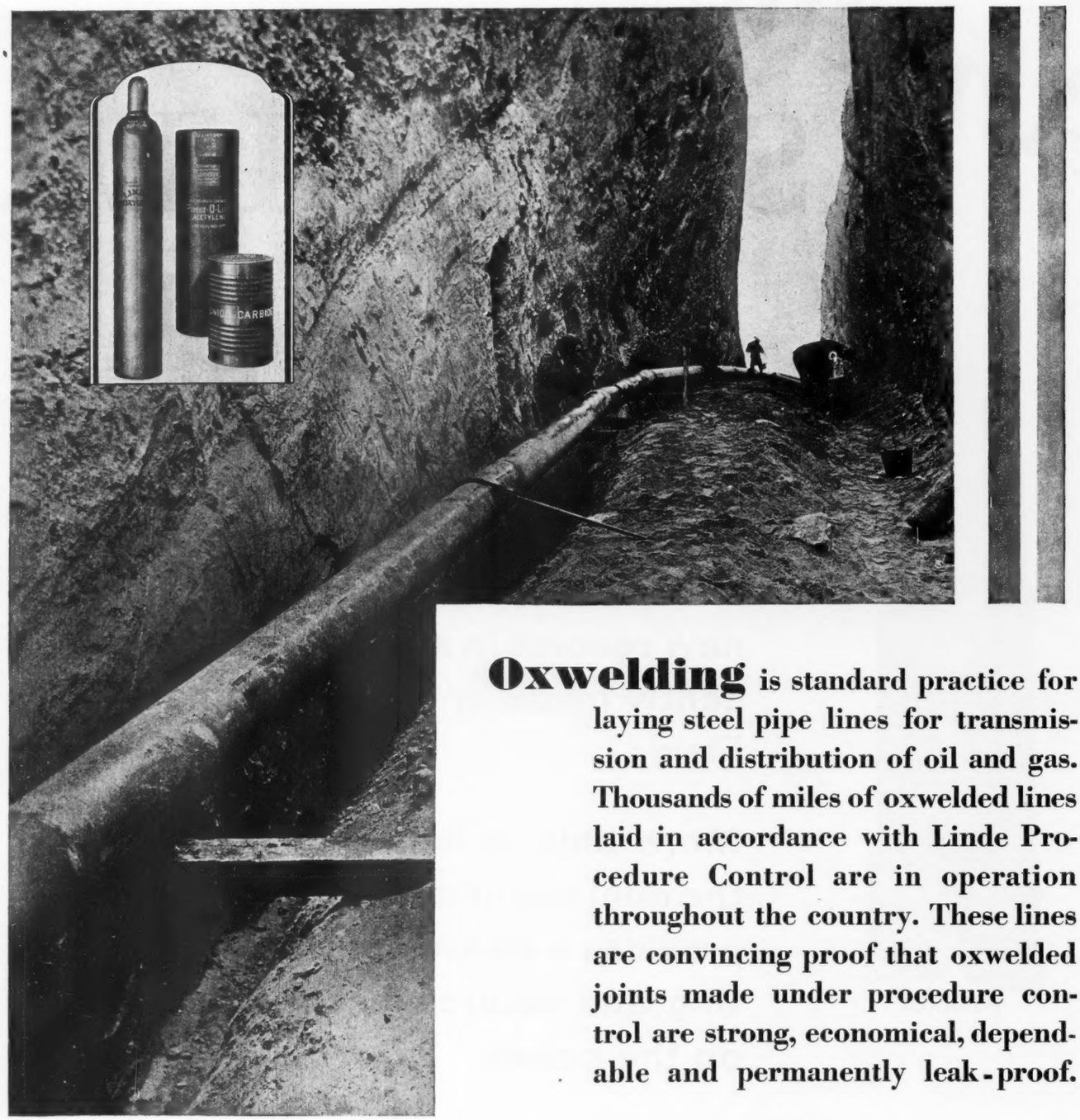
A. F. SPENGLER CO.

OKLAHOMA CITY, OKLAHOMA

SPENGLER PRODUCTS MEET A.P.I. SPECIFICATIONS

The Oil and Gas Journal, issued weekly by The Petroleum Publishing Company, 114-116 West Second Street, Tulsa, Oklahoma. Subscription price $6.00 a year; 15 cents a copy. Entered as second-class mail matter December 15, 1911, at the post office at Tulsa, Okla., under the Act of March 3, 1879.

Oxwelded Pipe Lines for Oil and Gas



Oxwelding is standard practice for laying steel pipe lines for transmission and distribution of oil and gas. Thousands of miles of oxwelded lines laid in accordance with Linde Procedure Control are in operation throughout the country. These lines are convincing proof that oxwelded joints made under procedure control are strong, economical, dependable and permanently leak-proof.

Pioneers in Procedure Control for Welding

LINDE OXYGEN
The Linde Air Products Company

Prest-O-Lite
Dissolved Acetylene
The Prest-O-Lite Company, Inc.

Oxweld
Apparatus and Supplies
Oxweld Acetylene Company

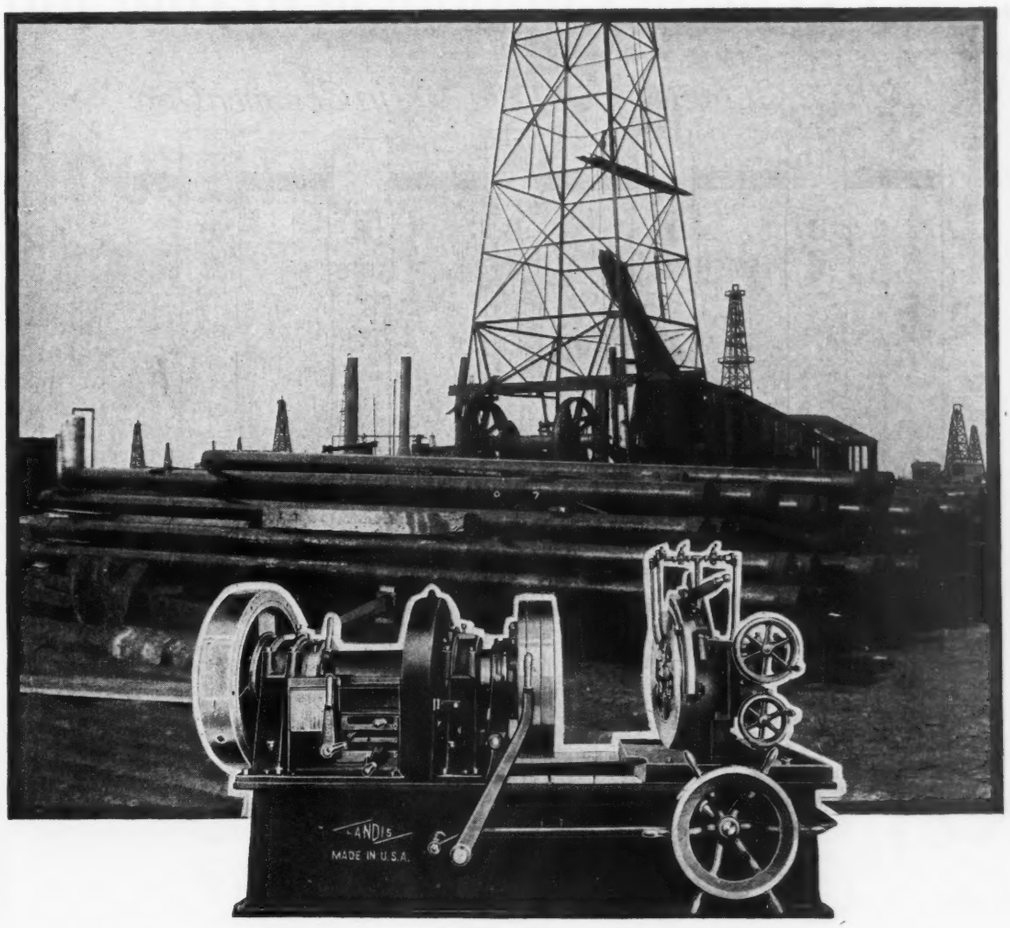
UNION CARBIDE
Union Carbide Sales Company

Units of UNION CARBIDE UCC and CARBON CORPORATION

General Offices: 30 East 42nd Street, New York, N. Y. *Sales Offices:* In principal cities of the country

65 Linde Plants—48 Prest-O-Lite Plants—174 Oxygen Warehouse Stocks—156 Acetylene Warehouse Stocks —42 Apparatus Warehouse Stocks—245 Carbide Warehouse Stocks.

Modernize Your Threading Methods



THE installation of Landis Pipe Threading and Cutting-Off Machines brings your pipe shop up to date—well equipped to produce accurate, well formed and leak proof threads, that are in accordance with the A.P.I. Standards.

Landis Pipe Threading and Cutting-Off Machines are *modern* machines, developed by an organization devoted exclusively to the manufacture of threading equipment that meets the exacting demands of modern threading.

The Landis Pipe Threading and Cutting-Off Machine is sturdily built—which is especially desirable for oil-field use—where the equipment is subjected to heavy duty service.

We know that you will be pleased with the quality of the work produced, the higher production and the lower maintenance cost that is yours when your shop is Landis equipped.

Complete specifications of Landis Pipe Threading and Cutting-Off Machines are found in Catalog No. 31. Write for it.

LANDIS TRADE MARK

The Landis Chaser

THE Landis Chaser employs principles that are distinctive of Landis. The variable rake angle insures smooth well-formed threads and the shearing action reduces the cutting strain and consequent thread distortion—enabling constant accuracy to be maintained. The Landis Chaser produces a full length of tapered thread regardless of the number of times it has been reground. The long life and wide range keeps tool cost at a minimum.

LANDIS MACHINE COMPANY, Inc.

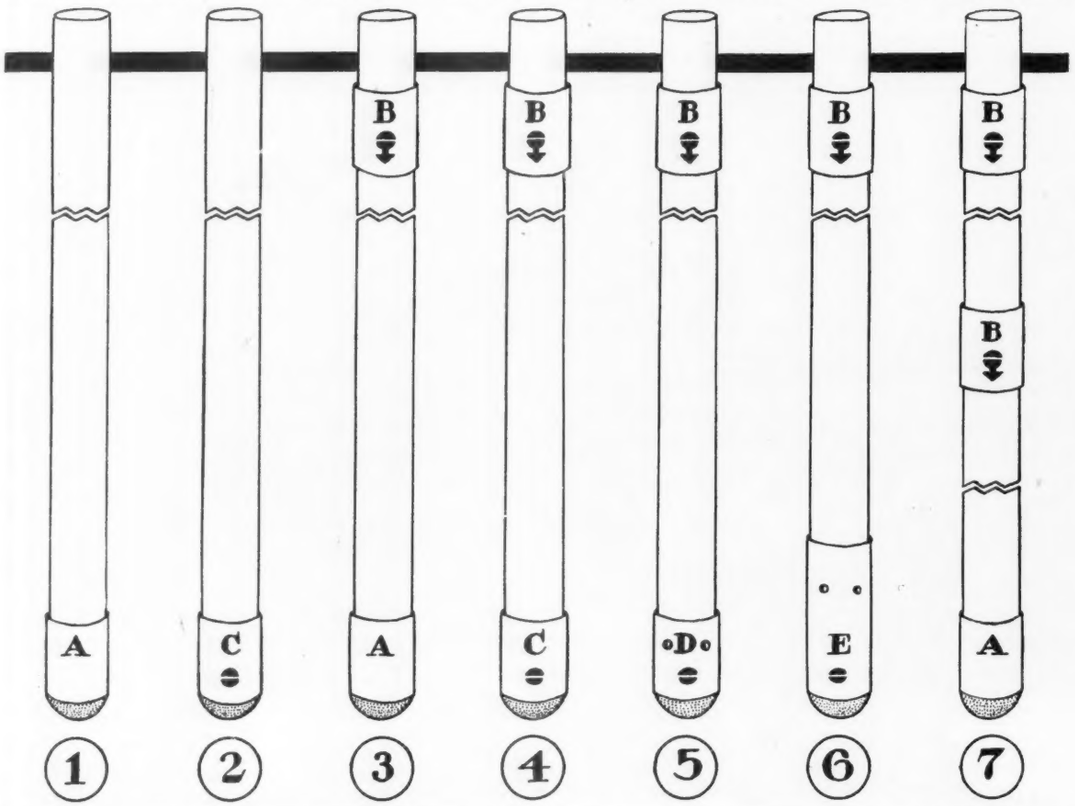
Waynesboro, Penna., U. S. A.

Detroit Office—5928 Second Blvd.
Cleveland Office—504-505 Marshall Bldg.

REPRESENTED IN THE DOMESTIC OIL FIELDS BY: Colcord-Wright Machinery & Supply Co., St. Louis, Mo.; D. S. Mair Machinery Co., Houston, Tex.; Woodward, Wight & Co., New Orleans, La.; Herberts Machinery & Supply Co., Los Angeles, Calif.; Herberts Moore Machinery Co., San Francisco, Calif.; Hendrie & Bolthoff Mfg. & Supply Co., Denver, Colo.

Adapt Baker Cement Equipment to your purpose—

Combinations of BAKER CEMENT EQUIPMENT in Common Use



IT'S SAFE

In the plain line drawing at the left are shown a few of the more commonly used combinations of Baker Cement Equipment.

Preferences vary, in different areas, of course, but all areas have one thing in common: They all use Baker Cement Equipment.

A

The Baker Cement Guide Casing Shoe is a Baker-Formula Concrete guide-shaped Plug, in a Plain Casing Shoe, 16 inches in length.

B

The Baker Cement Float Collar is 20 inches long, containing a Baker Concrete Plug which encloses a Baker Celoron Ball Check Valve.

C

The Baker-Burch Cement Float Shoe combines the Float Valve and the Guide. It is used for Floating, Guiding and Cementing.

D

The Baker-Burch Side Hole Cement Float Shoe is a variation of the regular Float Shoe. It has many advantages of unusual value.

E

The Baker-Burch HIGH Side Hole Cement Float Shoe is a further variation of the Float Shoe to take care of unusual conditions.

Detailed Information Will Be Mailed on Request

Mid-Continent Branches
Tulsa, Oklahoma Houston, Texas
Export Sales Office
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BAKER OIL TOOLS, INC.
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California Branches
Coalinga, Ventura, Taft, Bakersfield

Mid-Continent Distributors
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220 E. Brady St., Tulsa, Okla.
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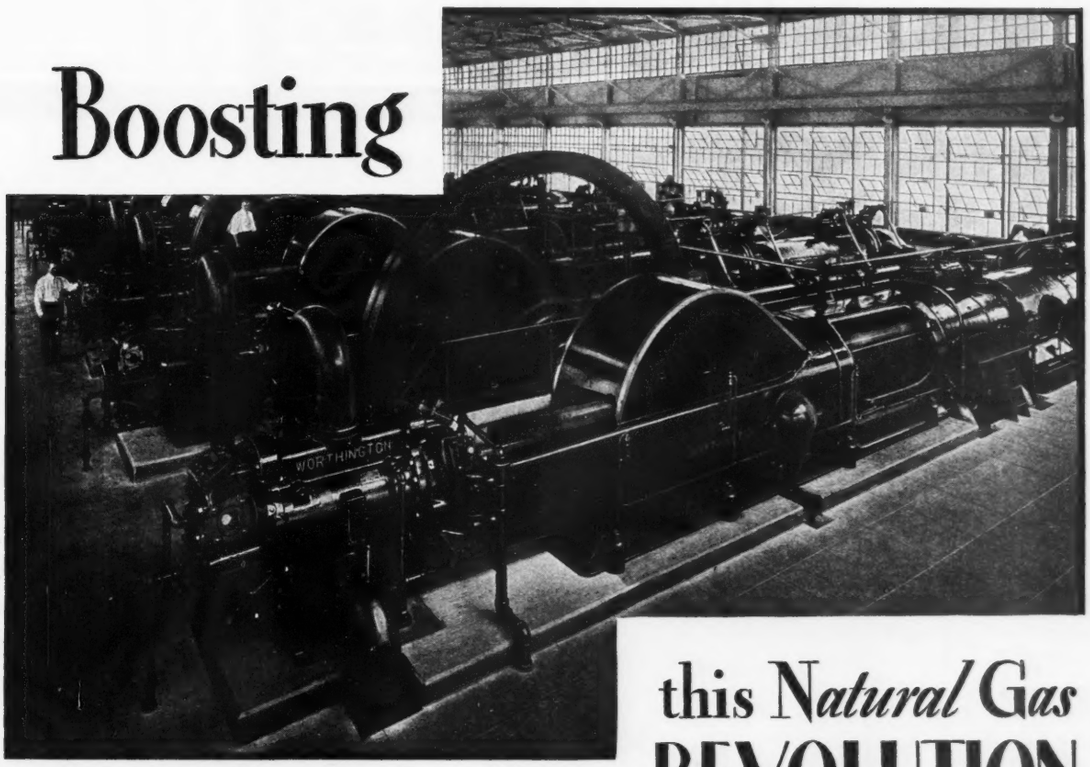
Don't Use Cast-Iron Equipment — Cement is Stronger and Better

Stocks carried by Dealers in all active Mid-Continent fields.

Boosting this *Natural* Gas REVOLUTION



DeSiard Station, Interstate Natural Gas Company, Monroe, La., a typical installation of four Worthington 25"x48" Twin Tandem Gas-engine-driven Gas Compressors. Ford, Bacon & Davis, Engineers.

THE revolutionary expansion of natural gas service is becoming a factor of national importance . . . influencing production costs and reaching into the daily lives of thousands of communities.

In this revolution Worthington is deeply interested . . . not only because it is supplying a large part of the gas-engine-driven compressors installed on the large pipe lines . . . but because the increased distribution of natural gas opens up new fields of usefulness for pumps and other types of Worthington-built equipment.

Worthington Gas Engines now installed reach a total of nearly 400,000 horsepower. An experience of thirty years in building these engines is an assurance to pipe line designers and owners that Worthington equipment is a safe investment.

Bulletin S-550-B1 describes and illustrates Worthington Gas-engine-driven Gas Compressors.

May we send you a copy?

WORTHINGTON

PUMPS
COMPRESSORS
Stationary and Portable
CONDENSERS
and Auxiliaries
DIESEL ENGINES
GAS ENGINES
FEEDWATER HEATERS
WATER, OIL and
GASOLINE METERS

Literature on Request

EGR-5

WORTHINGTON PUMP AND MACHINERY CORPORATION

Works: Harrison, N. J. Cincinnati, Ohio Buffalo, N. Y. Holyoke, Mass.
Executive Offices: 2 Park Avenue, New York, N. Y.
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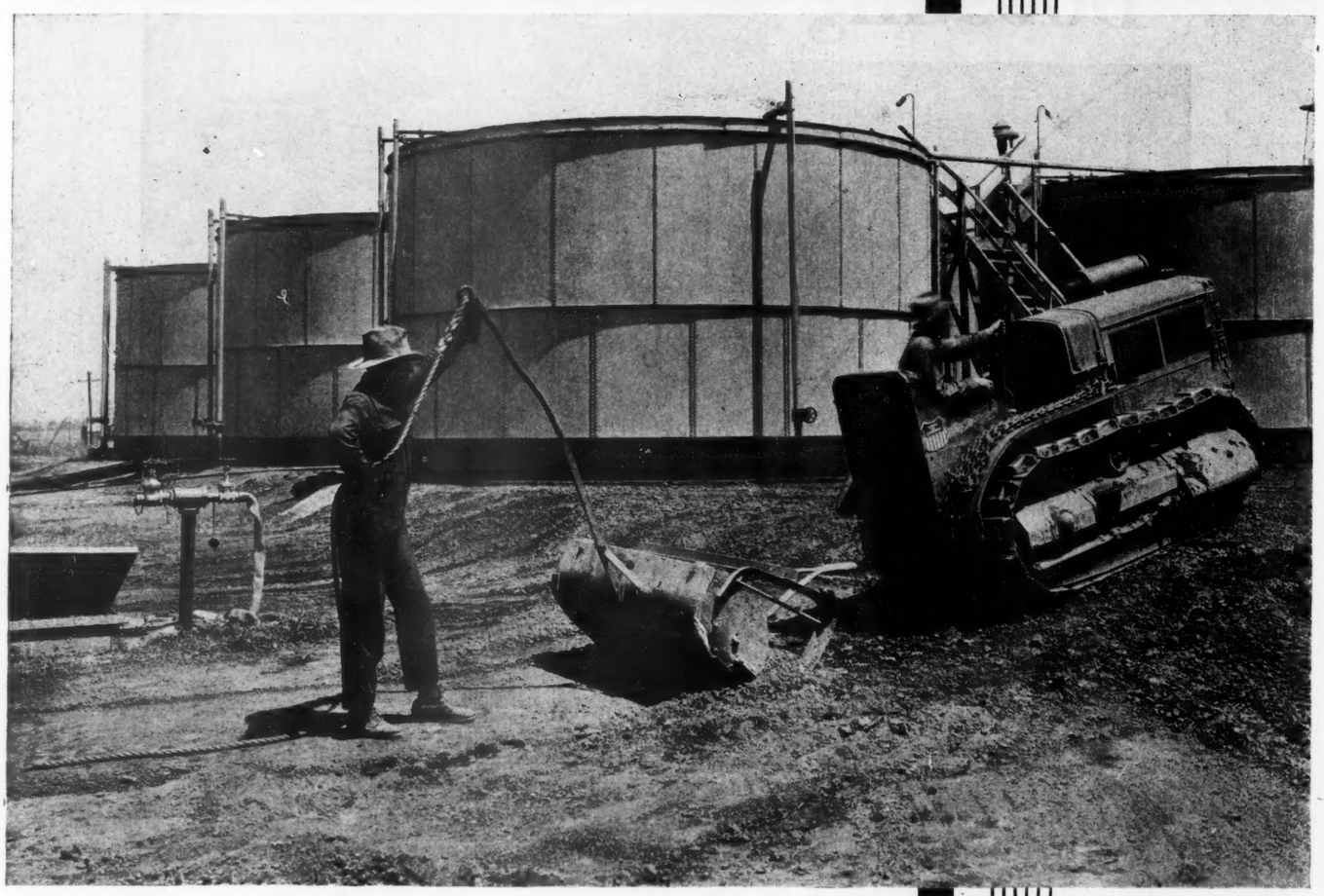
Buffalo	Cleveland	Detroit	Kansas City	New York	St. Louis	San Francisco	Washington

Branch Offices or Representatives in Principal Cities of all Foreign Countries

WORTHINGTON

TERRACING
around the tanks



"CATERPILLAR" Tractors are not only famous for spectacular victories over the mud and hardship and bulky loads incidental to wild-catting—but for steady, faithful service in developed fields or about a refinery. This "Caterpillar" Twenty, operated by the Union Oil Company in the Dominguez field, banishes the fire-hazard of dry weeds—builds terraces, ditches and walls—hauls heavy loads—excavates—levels—willingly performs a score of useful chores.

Prices—f. o. b. Peoria, Illinois

TEN	$1100	TWENTY . .	$1900
FIFTEEN . .	$1450	THIRTY . . .	$2375
SIXTY . . .	$4175		

Caterpillar Tractor Co.

PEORIA, ILL. *and* SAN LEANDRO, CAL., U. S. A.

Track-type Tractors ✓ Combines ✓ Road Machinery

(There's a "Caterpillar" Dealer Near You)

CATERPILLAR REG. U.S. PAT. OFF. TRACTOR

THE CELEBRATED SKIP TOOTH DIE

(Genuine Nye)

REG. U. S. PAT. OFFICE

A LETTER FROM HARRY G. NYE

TO THE OIL MEN OF THE U. S. A.

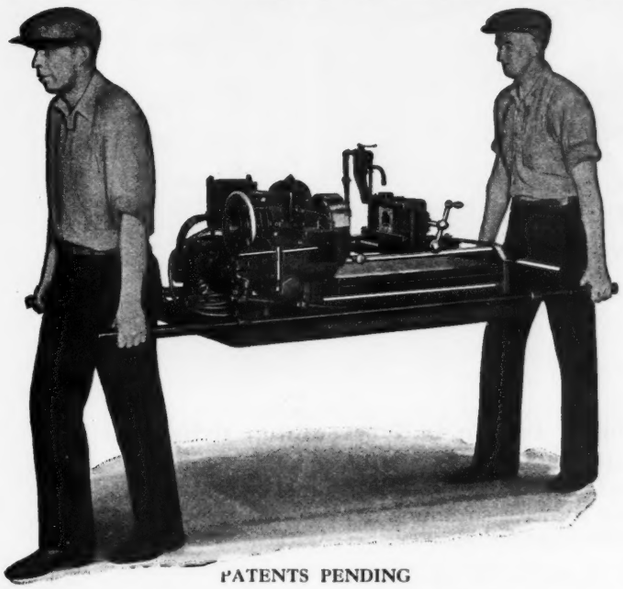
ABOUT 300 WORDS ABOUT 500 WORDS

FELLOW CITIZENS:

I see that Cal Coolidge is going to write a 500-word history of the United States. Well, if anybody can Cal can. He ran this country seven years on less than that. Cal never said "thank you" when "thanks" would do just as well. I'll bet he turned down many a salesman trying to sell him a battleship because "no" is shorter than "yes." It must have been pretty tough to lug a battleship 'way up to the white house, and then run up against a customer who didn't even try to cut the price.

You can't help but wonder what words Cal will use, and how he will use them. He isn't a man to wear out a new typewriter ribbon, just because he is getting $10 a word. Just think of it, $10 a word. I never got anything like that for any of mine. Of course, I've paid that, and more. I once paid $200 for two words that another fellow said. What he said was "four aces". And a lot of men have paid a lot more than that because some woman said "yes".

Cal certainly ought to mention Columbus, to begin with. Nice shape we'd be in if we'd never been discovered. And what would a lot of fellows do for liquor? Probably just what they do now. And George Washington, the man who never told a lie; and left no descendants. He will certainly have to mention the father of his country, and also the D. A. R. And the war of 1812, and the panic of 1873, and the Buick of 1930. And the war between the states. I mean Florida and California.



PATENTS PENDING

"THE LIGHTWEIGHT CHAMPION"

POWER PIPE THREADING MACHINE
THREADS, CUTS OFF AND REAMS
CAPACITY ½ TO 2 INCHES

And there was the Mexican war, and the Indian wars, and the Spanish-American war, and several price wars. And there was the stock market slump of 1929. Cal ought not to forget that. Nobody else ever will. And there was the development of the radio, and the invention of jazz, and several other calamities. And the talkies, which, strange to say, were invented during Mr. Coolidge's administration.

No, sir, we don't see how Cal is going to cover it in 500 words. It would be as hard to do as to tell in 500 words the superior merits of Nye tools.

Truthfully yours,

HARRY G. NYE.

Otherwise Known As

The Nye Tool & Machine Works

4120-30 Fullerton Avenue Chicago, Ill.

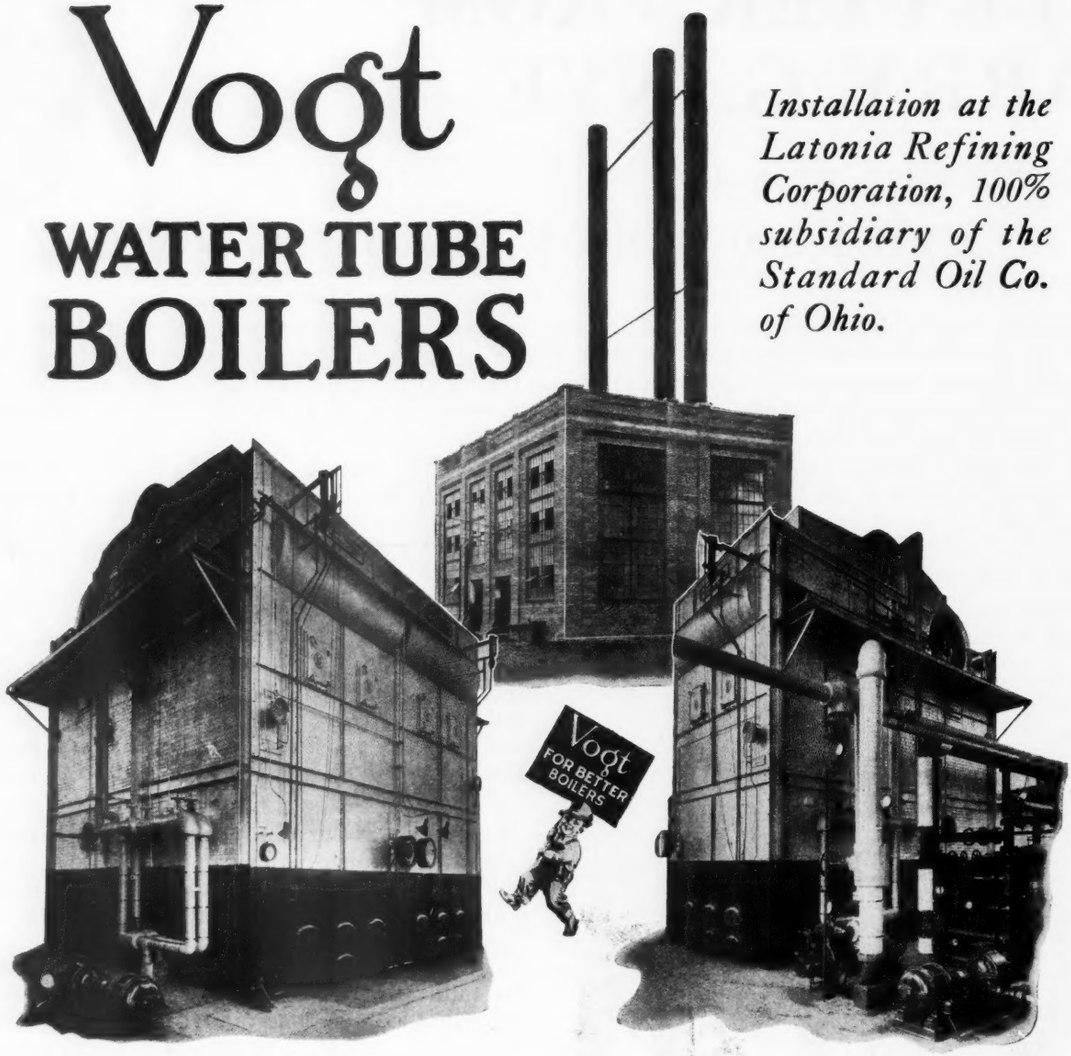
Copyright, 1930, by Harry G. Nye. All rights reserved.

NYE TOOLS FOR SALE BY ALL LEADING SUPPLY HOUSES

REFINERS ARE AMONG THE LARGEST USERS OF

Vogt WATER TUBE BOILERS

Installation at the Latonia Refining Corporation, 100% subsidiary of the Standard Oil Co. of Ohio.



Three 400 horse power four drum boilers, two in battery setting, deliver steam superheated as much as 30 deg. at the Latonia Refining Corporation, Latonia, Ky. Besides eliminating line and cylinder condensation, this slight superheat also eliminates carrying in suspension highly abrasive particles so injurious to valves, cylinders, turbines, etc. The above is one of many reasons why the Vogt four drum boiler is particularly suited to refinery service.

HENRY VOGT MACHINE CO.
INCORPORATED
LOUISVILLE, KY.

New York Chicago Philadelphia Cleveland Dallas

Manufacturers of: OIL REFINERY EQUIPMENT, DROP FORGED STEEL VALVES AND FITTINGS, WATER TUBE AND HORIZONTAL RETURN TUBULAR BOILERS, ICE MAKING AND REFRIGERATING MACHINERY.

Illustrated above is one step in the making of a Halliburton Cement Mixer in the company's shops.

In oil well cementing s-p-e-e-d is the indispensable factor, the essential "ingredient." When Halliburton entered the field no mixing method was fast enough to provide the SAFETY factor desired. Accordingly, an entirely new principle of cement mixing was devised—a type of mixer which provides not only the fastest known method of mixing cement and water but one which introduces a new degree of mixing *efficiency*. The Halliburton mixer is used only in the Halliburton Process.

To keep abreast of drilling methods, it is necessary to keep abreast of cementing developments. THE CEMENTER—filled with interesting information—will be sent gratis as issued on receipt of the coupon.

HALLIBURTON
OIL WELL CEMENTING CO.
Duncan, Oklahoma

Halliburton Oil Well Cementing Co.
Dept. OG, Duncan, Oklahoma.

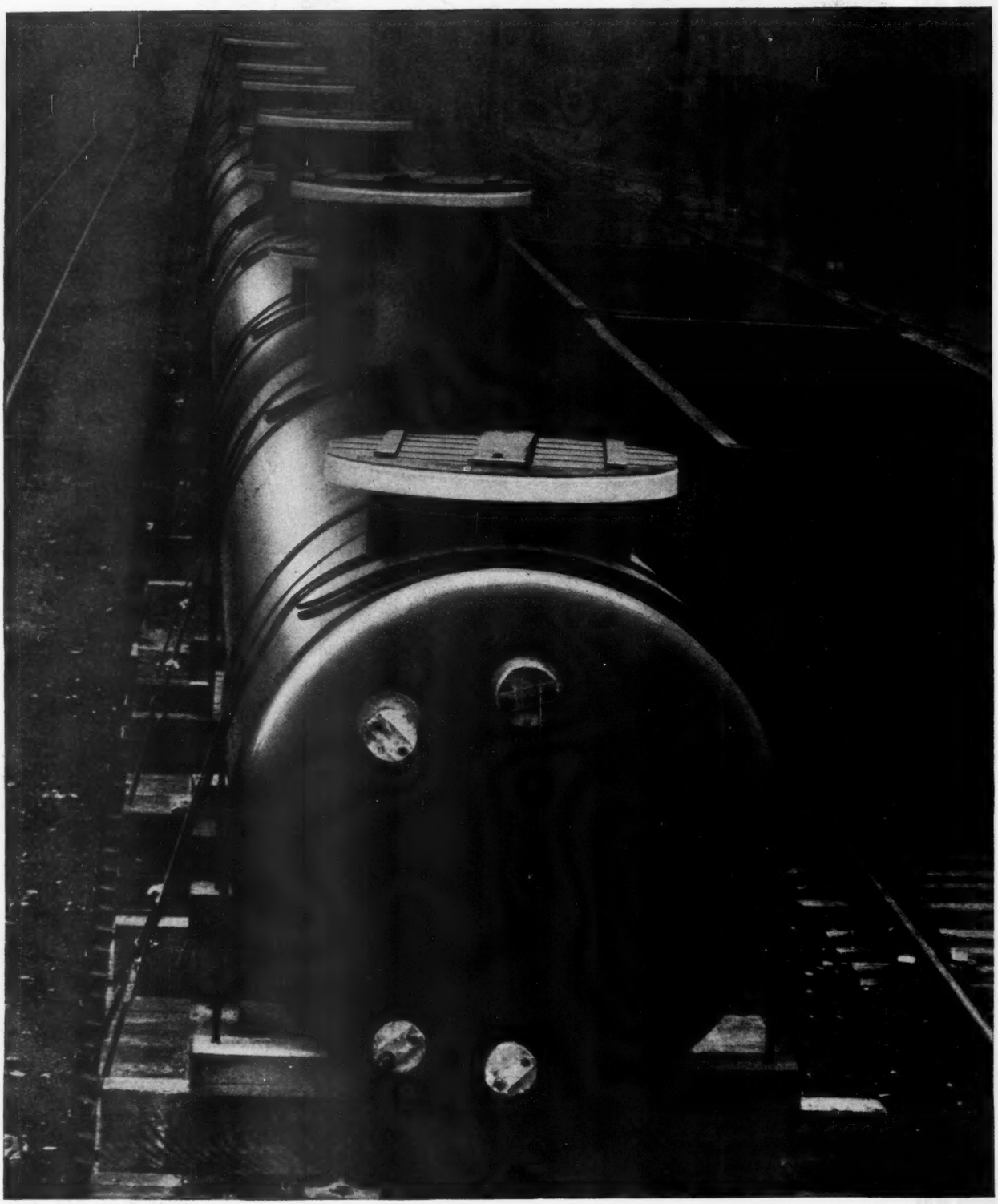
Without cost or obligation, please place my name on the list to receive THE CEMENTER regularly as issued.

Name _____

Company _____

Address _____

A SINGLE SHIPMENT



SMITH *WELDED*

OF A TRAIN LOAD OF JENKINS STILLS

This completes the roll call of major cracking processes. The A. O. Smith Corporation has now had orders for vessels for them all.

A. O. SMITH CORPORATION

OIL AND GAS FIELD PRODUCTS DIVISION

General Offices: Milwaukee, Wis. District Offices at New York City, Tulsa, Houston, Los Angeles

CRACKING STILLS

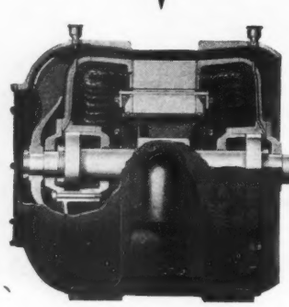
even Lamp Black is kept out of these Motors

Lamp black, one of the most penetrating materials and very destructive to motor insulation, is completely and permanently excluded from the interior of the Allis-Chalmers totally enclosed fan-cooled motors illustrated above.

These are driving agitating fans in the Pampa, Texas, plant of the Texas Elf Carbon Company, a subsidiary of Godfrey L. Cabot, Inc. After a year's operation several motors out of an installation of almost a hundred in this plant were examined and found to be *as clean inside as the day they left the factory.*

Dirt, dust, gases, or moisture can't get into Allis-Chalmers "ARZ" motors. The active parts are totally enclosed by means of a one piece cast iron end housing and bearing support, with no rubbing or revolving seals, a distinctive feature which also provides ease of accessibility.

Write to the Allis-Chalmers Sales Office nearest you for a copy of Leaflet No. 2109 describing type "ARZ" motors.

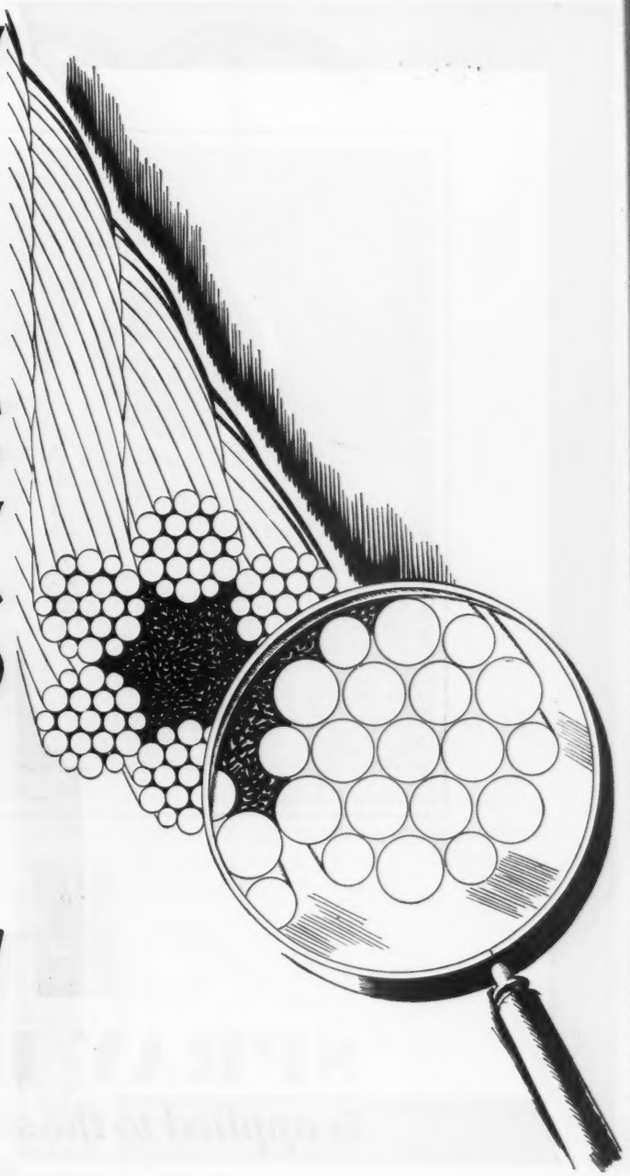


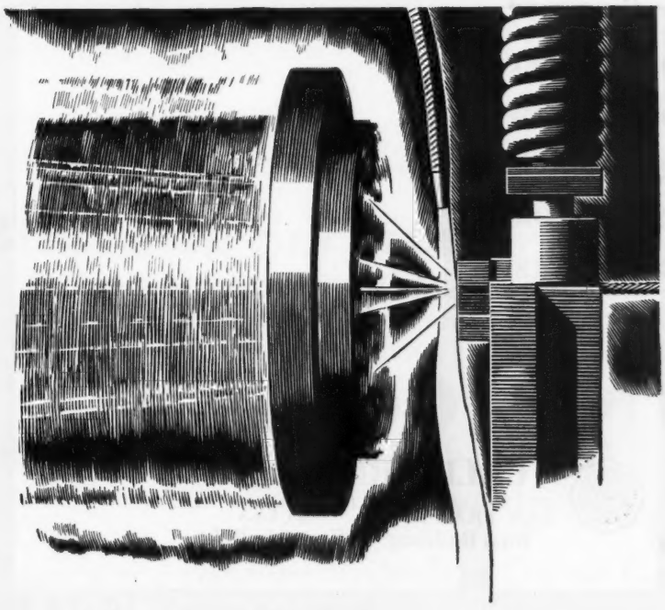
Allis-Chalmers Manufacturing Company
Milwaukee, Wisconsin

ALLIS-CHALMERS

Totally Enclosed Fan-cooled MOTORS

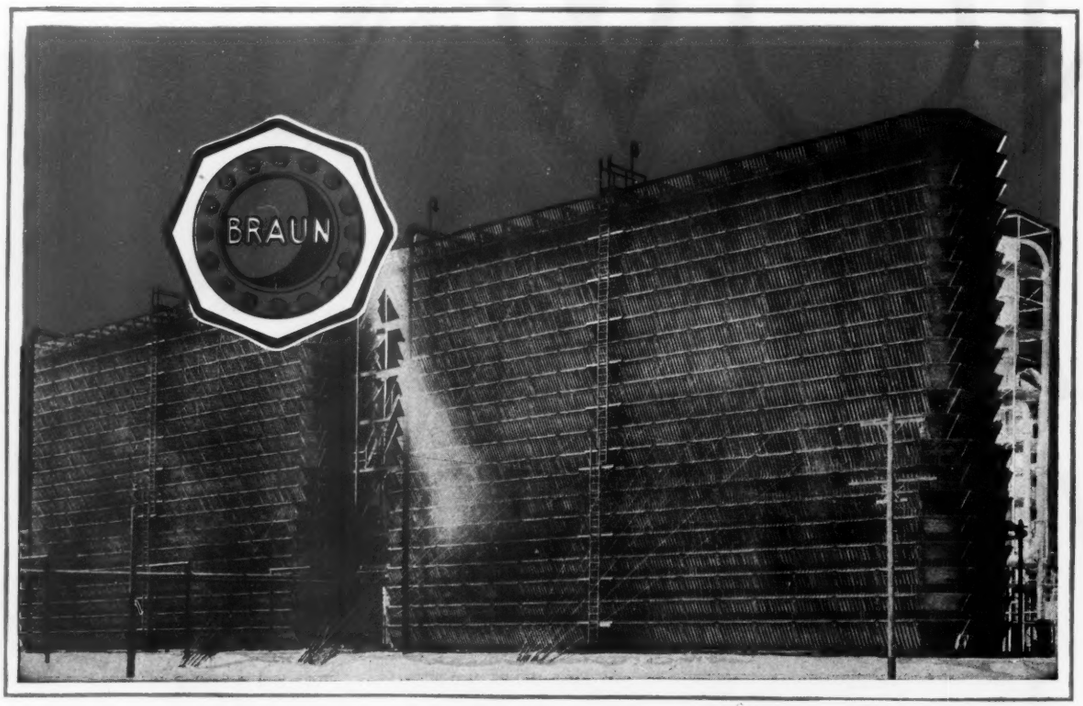
NOW MACWHYTE WIRE LINES *Lubricated*





ALL THROUGH!

Not just the hemp core—not just the outside of the line—but every wire in the line individually greased during fabrication. Every wire sprayed with high grade petroleum grease as it is stranded. Protects the wires against internal friction. Longer service—greater economy. Macwhyte Company, Kenosha, Wis.



And Now . . .

SPRAY DISTRIBUTION

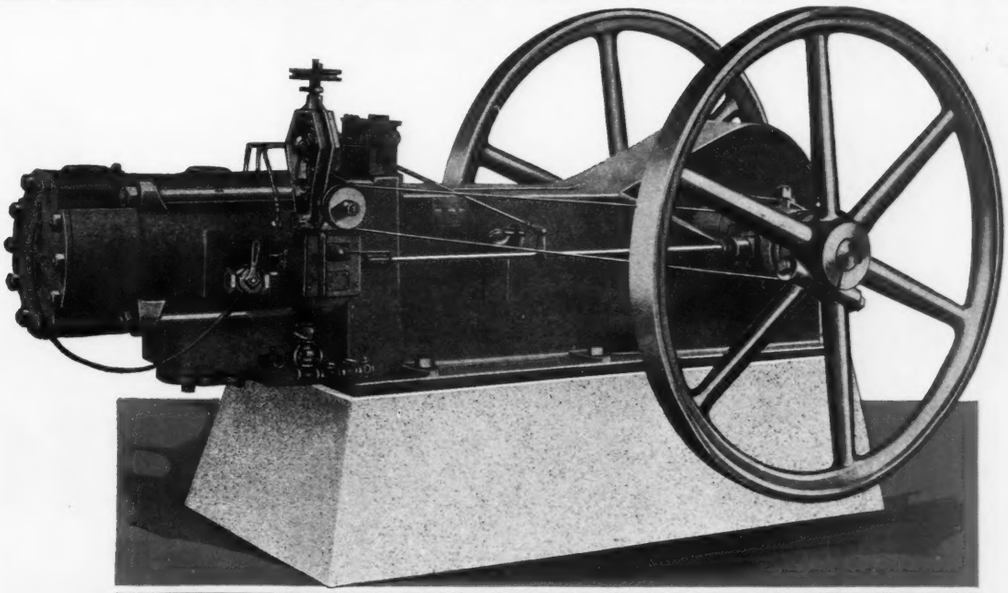
is applied to the standard* BRAUN *cooling tower

Non-clogging, non-fouling and requiring no adjustment under normal load variations, a new spray type distributing system is offered in BRAUN VENTILATOR-SEPARATOR COOLING TOWERS.

C·F·BRAUN & CO., LTD.

ALHAMBRA CALIFORNIA

NEW YORK 120 Broadway
HOUSTON Neils Esperson Bldg.
SAN FRANCISCO Russ Building
TULSA Kennedy Bldg.



FRANKLIN VALVELESS O.G. PUMPING ENGINE

THE VERDICT IS FINAL

Examine the Franklin Valveless OG Gas Pumping Engine in every detail — compare it with any other engine — test it under service and your final verdict will be that here is a better pumping engine.

The OG was designed and built with the intention of making it the best pumping engine — our users (and the list is steadily growing) tell us we have succeeded: Smooth power that handles all pumping loads—that romps away with a swabbing or pulling job—an engine with a clutch as good as is possible to build.

Distributed by

OIL WELL SUPPLY CO.

Built For Service

The Franklin Valveless Gas Pumping Engine is built for service—hard service. It deserves your investigation today.

FRANKLIN VALVELESS ENGINE COMPANY

Franklin, Pennsylvania

There's a Franklin Valveless Oil or Gas Engine for Every Oil Field Requirement . . . . . .

THE LIGHT LOW-COST METAL FOR YOUR SOCKETS

35% lighter and four times as hard as No. 4 Babbitt [Brinell hardness 64]—tougher and more ductile! There is no longer any good reason for using anything but Eagle Rope Socket Metal for socketing wire rope. It was especially designed after long research for this purpose alone. It is low in first cost because it is so light—and it is long in service.

At all distributors—or direct from Eagle-Picher at Joplin. Free descriptive booklet on request. *The Eagle-Picher Lead Company, Chicago, Joplin, Cincinnati.*

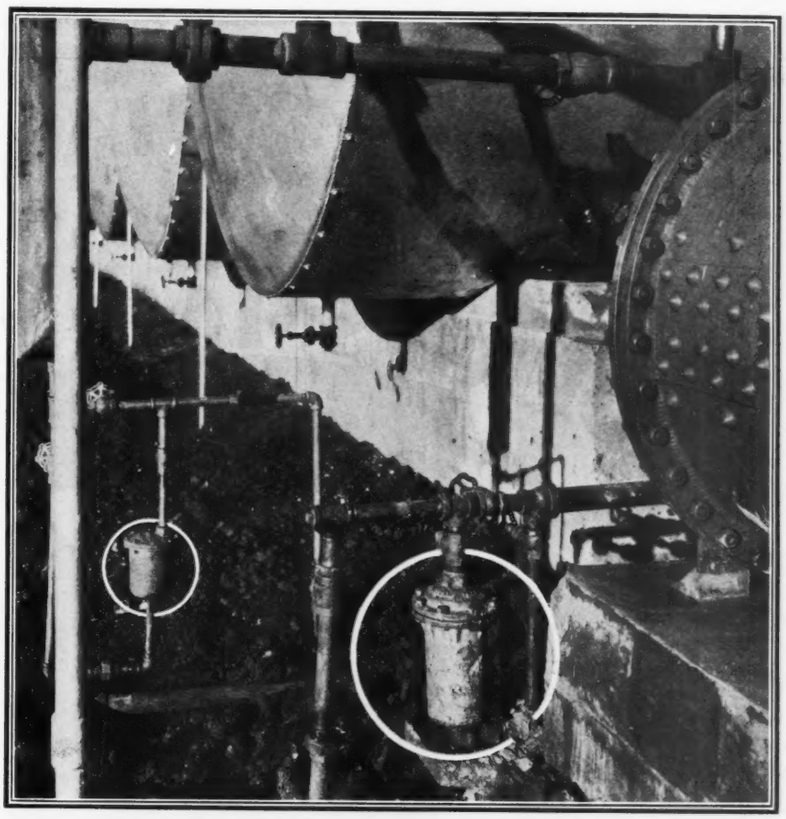
Aid Conservation
by using Eagle Lead Wool and Cartridge Container for plugging off bottom water! Send for free folder.

Reg. U. S. Pat. Off.

EAGLE Rope Socket Metal

Patent Pending

Armstrong steam and gasoline traps on stabilizer, Cosden Co., Lovell, Oklahoma.



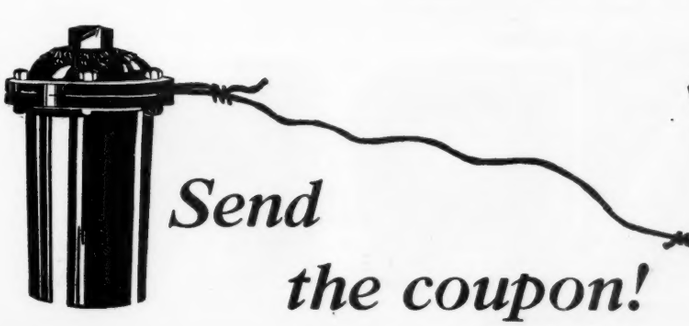
You can't buy an Armstrong trap if it isn't satisfactory!

unless you insist on it. We allow you to test as many Armstrongs as you like for 90 days, without cost to you or obligation. You can find out for yourself whether or not they are satisfactory. Then return them to us at the end of the trial period, transportation charges collect.

Furthermore, if for any reason any Armstrong Trap already bought does not produce the results the user has a right to expect from it, the nation-wide Armstrong organization stands ready to make it satisfactory on short notice.

As thousands of owners in the oil and other industries have discovered, Armstrong inverted bucket traps give practically attentionless operation. They cannot airbind; do not clog from scum or sediment; do not leak steam or wire-draw; are small enough to be supported by connecting pipes; and have capacities greater than most traps of much larger size. Made in sizes and types for pressures to 1350 lbs. and any degree superheat; also with aluminum buckets for gasoline service.

Armstrong Machine Works
368 Maple Street
Three Rivers, Michigan



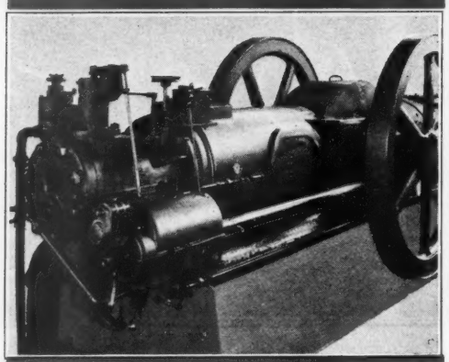
Send the coupon!

Fill in and Mail For 90 Day Test

To _____ (Name) _____ (Firm)
_____ (Position) _____ (City) _____ (State)
_____ (Street)
For _____ (Size and make of machine)
Size of Pipe _____ Steam Pressure (Max.) _____
☐ *Send Catalog* *from*
ARMSTRONG MACHINE WORKS
368 Maple Street
THREE RIVERS, MICH.

OGJ 3-20-Gray

MIGHTY HANDY AROUND SMALL LEASES



The new CLARK "40" Pumping Engine and Compressor Unit is mighty handy around small leases . . . enabling you to produce oil in the most efficient and economical manner.

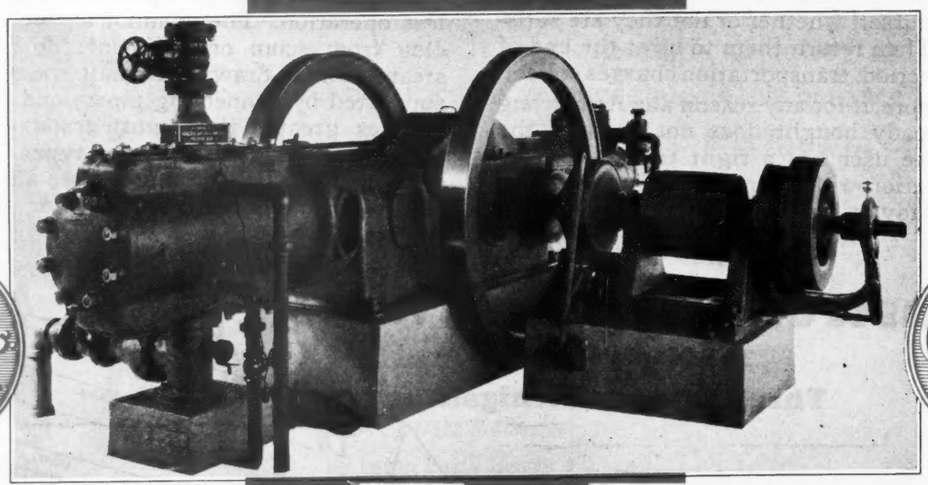
Either the Pumping Clutch or Compressor End can be used without change in engine bedplate. Thus you can pump wells, or put them on air-lift, as conditions warrant. . . . . and at a cost consistent with small production.

The new CLARK "40" is a perfected 4-cycle engine, fully enclosed and automatically lubricated with filtered oil. Use of crosshead eliminates piston slap. Moderate speed—200 R.P.M.—gives durability.

The scientifically designed CLARK Pumping Clutch has double bearing which removes all belt strains from engine crankshaft. Compressor cylinders are available in various sizes.

The Clark "40" Compressor and Pumping Engine

CLARK BROS. COMPANY
OLEAN, N. Y.
Export Office: 150 Broadway, New York
Mid-Continent Sales Offices: Tulsa and Fort Worth
California: Smith, Booth, Usher Co. 228 S. Central Ave., Los Angeles
Warehouses: Tulsa, Okla; McCamey and Sweetwater, Texas; Artesia, N. M.

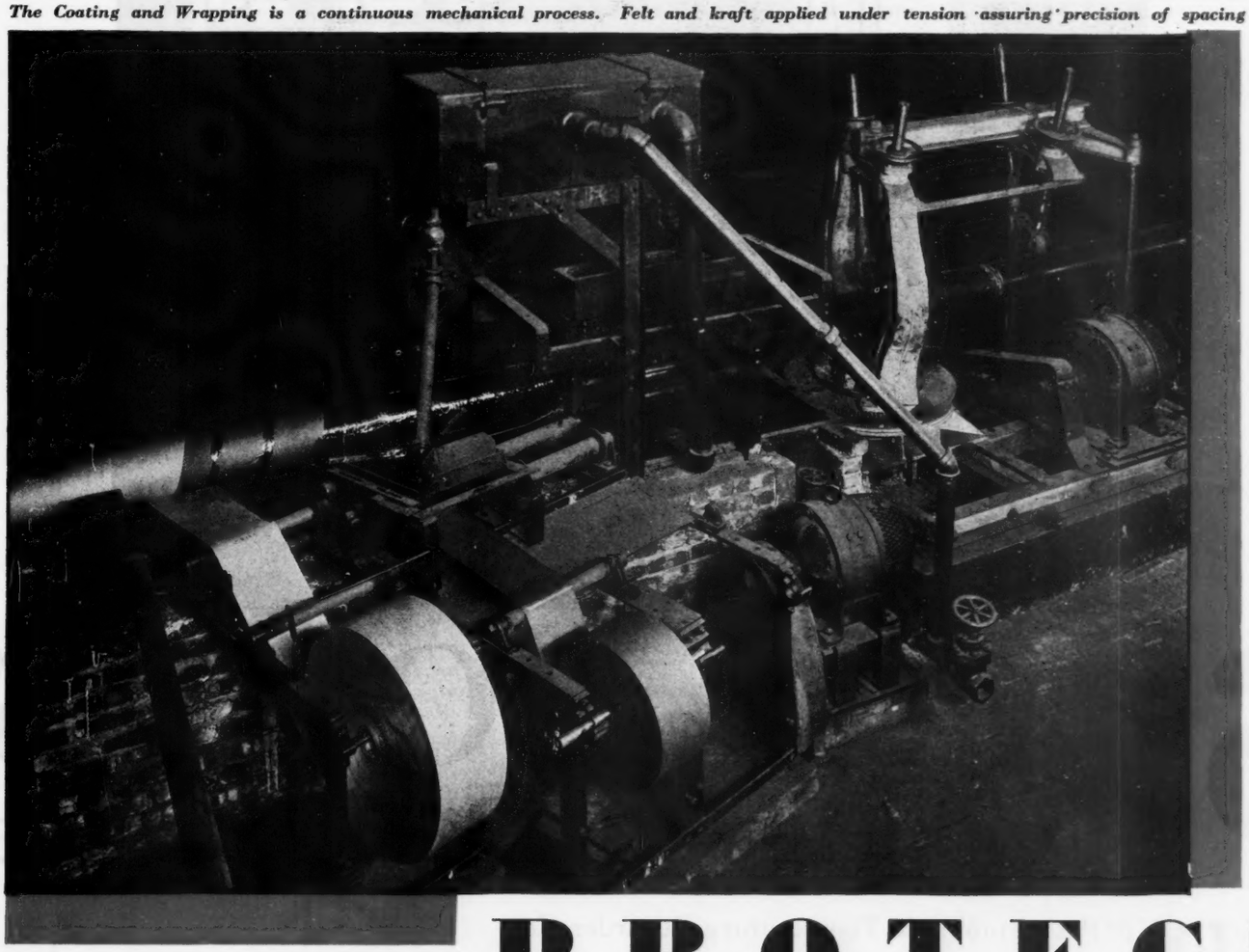


Clark Bros. Co. OLEAN N.Y.

Compressors and Gas Engines

CLARK

The Coating and Wrapping is a continuous mechanical process. Felt and kraft applied under tension assuring precision of spacing



PROTECT

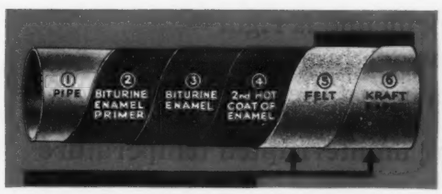
YOUR PIPE INVESTMENT AT THE TIME YOU ORDER YOUR PIPE

LINE PIPE is steel, and as such, is subject to corrosion — unless protected with a coating that is resistant to moisture, acids and alkalis.

Hand-coating of new pipe in the field offers but partial protection, and very expensive protection, to say nothing of the excessive cost of digging up old pipe lines, reconditioning and relaying them.

Stockholders in pipe line companies are looking for substantial dividends. They have every right to be disquieted if reports show great chunks gouged out of the profit column to pay for frequent reconditioning of the pipe lines.

The time to protect the pipe is *before* the pipe is laid. Pipe purchased at the mills listed below, mechanically coated and wrapped *at the mill* by the Hill, Hubbell & Company Process, does away with all uncertainty, lowers the cost of pipe protection and brings the pipe to the field thoroughly armored against corrosion, ready for weld and backfill. The outer wrappings, applied under high tension, protect the enamel coating during transit and after the pipe is in the ground act as a mechanical protection against soil-stress. Pipe protected by the Hill, Hubbell & Company Process of mechanical coating and wrapping gives years and years of uninterrupted and leak-proof service.



Felt and kraft wrapping are applied under tension

BITURINE COATINGS

Biturine Enamel — Biturine Solution No. 5
Biturine Enamel Primer — Biturine 70-30
Biturine Coupling Mixture

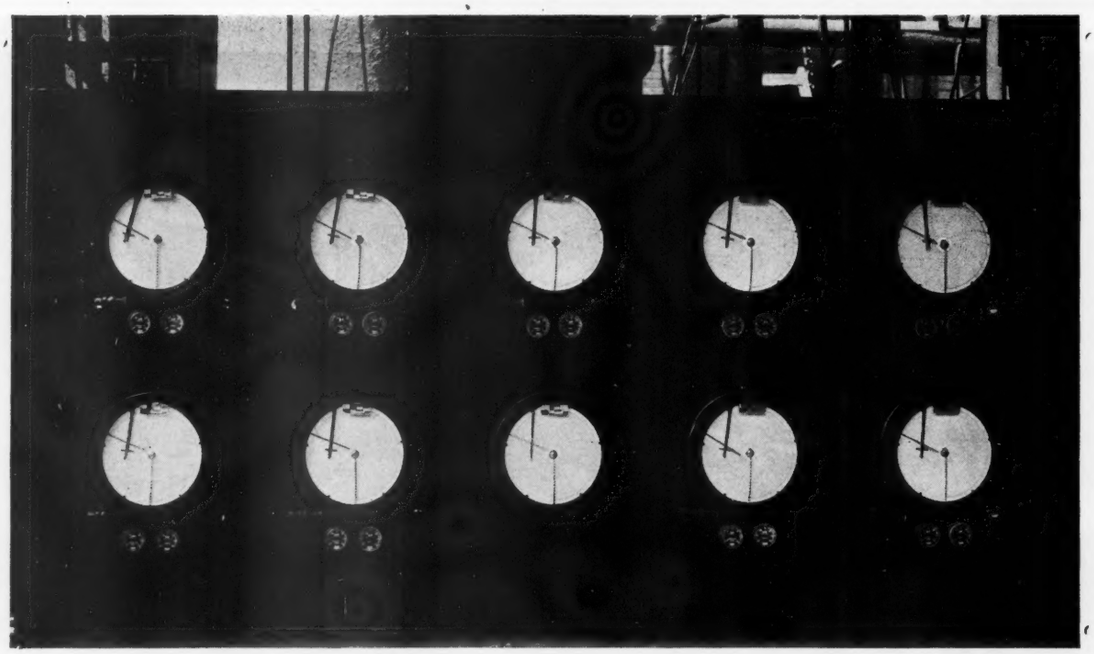
Biturine Enamel and Primer are perfectly adapted to the Hill, Hubbell & Company Process of mechanically applying coating to the pipe at the mill.

The Hill, Hubbell & Company Machine Coating and Wrapping Process was developed by the same group that has specialized for 23 years in protective coatings. Their plants are located in the following cities, for the production of the pipe manufacturers listed.

Central Tube Company.....Ambridge, Pa.
Spang-Chalfant & Company.....Ambridge, Pa.
Youngstown Sheet & Tube Company
Indiana Harbor, Ind.
National Tube Company.....Lorain, Ohio
A. O. Smith Corporation.....Milwaukee, Wis.
Youngstown Sheet & Tube Company
Youngstown, Ohio

Pipe up to 24-inch diameter are coated and wrapped by the Hill, Hubbell & Company Process and conform to any specifications as to the number of machine-applied hot coatings and wrappings required.

GENERAL PAINT CORPORATION
HILL, HUBBELL & COMPANY DIVISION
PAINTS VARNISHES LACQUERS
Specialists in the science of protective coatings for industry
Chicago New York Tulsa Houston Dallas San Francisco
Oakland Los Angeles Portland Seattle Spokane
Export Offices: 11 Broadway, New York, N. Y., U. S. A.
160 Fremont Street, San Francisco, Calif., U. S. A.



60,000 HOURS
of Continuous Performance

FOXBORO Automatic Temperature Recorder-Controllers have given more than six years of dependable service at the Marine Refining Corporation.

Their job is accurately to maintain constant dephlegmator temperatures. And they have done it day in and day out, because—

The operating principle is right—
The Instruments are built right—
They are properly installed.

If you are interested in long uninterrupted temperature control, we can help you.

The only possible way to maintain constant temperature of outlet vapors is to install the correct controller with the correct controlled valve in reflux lines. The Foxboro V-Port Valve, made full-floating by the action of the Foxboro Controller, will hold temperatures on the dot.

THE FOXBORO COMPANY
Neponset Ave., Foxboro, Mass., U.S.A.
Agents for Robinson Patented Orifice Flange Fittings

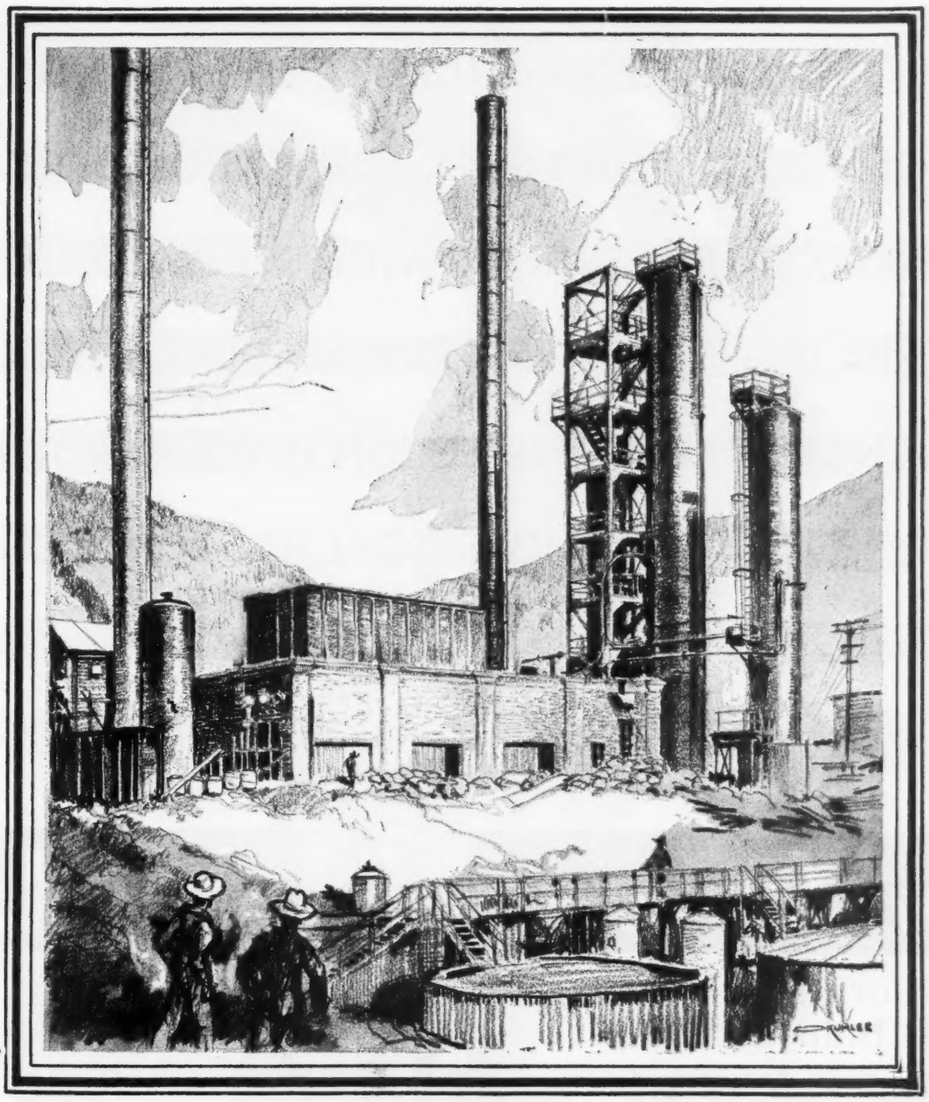
28 N. Guthrie Ave., Tulsa, Okla.
Magnolia Building, Dallas, Texas
J. E. Treacy, Strada Golesti No. 9, Ploesti, Roumania

New York Chicago Boston Philadelphia Pittsburgh Cleveland Rochester, N.Y. Atlanta Los Angeles San Francisco Portland, Ore. Detroit Salt Lake City

FOXBORO
Reg. U. S. Pat. Off.
THE COMPASS OF INDUSTRY

CANADA:
Peacock Brothers, Ltd., Montreal

Instruments for Controlling, Recording and Indicating Temperature, Flow, Humidity and Pressure



Kellogg GUARANTEES ARE BASED ONLY UPON *actually known* KELLOGG PERFORMANCE

Performance of Kellogg equipment, as repeatedly demonstrated in practice throughout the petroleum world, establishes the sound basis of the Kellogg guarantee. Long experience has shown refiners that they can expect Kellogg units to provide wider margins of capacity and yield than those actually estimated.

The M. W. KELLOGG COMPANY

225 Broadway, New York

LOS ANGELES, CAL., 1031 SOUTH BROADWAY TULSA, OKLA., PHILTOWER BUILDING

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NORDSTROM, THE PERFECT APPLICATION of a PRINCIPLE

HYDRAULIC LUBRICATION INSURES EFFECTIVE MANIPULATION

FABRICATED and LUBRICATED for LONG LIFE

WON'T LEAK, WON'T STICK; LUBRICATION DOES THE TRICK

THE VALVE CONTROLS THE FLOW; THE SCREW CONTROLS THE VALVE

THE TURN of a SCREW PUSHES LUBRICANT THROUGH

NORDSTROM'S PERFECTION IS YOUR PROTECTION

FOR THOSE WHOSE GOAL HAS BEEN CONTROL

NORDSTROM, LUBRICATED ACTION is the "SEAL" of SATISFACTION

BRINGING PRESSURE to BEAR on VALVE TROUBLES

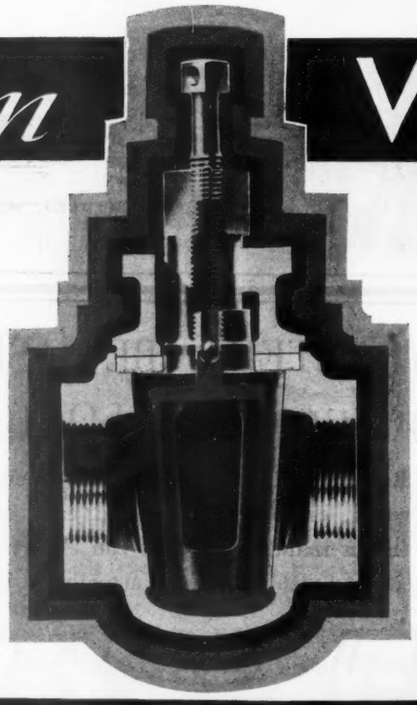
Nordstrom VALVES

For the Gas Industry

A special lubricant plus the principle of hydraulic pressure prevent leaks in Nordstrom Valves and make the valves easy to turn.

Nordstrom Valves are adapted to all services in the Gas Industry and are manufactured in sizes and types to meet your requirements.

Ask for latest Catalog.



Specify "Merco" Lubricant

To get the most efficient service from Nordstrom Valves, always use "Merco" Lubricants. These lubricants are specially compounded and are manufactured in stick form for easy insertion in valve. The "Merco" Lubricant best adapted to your service will be gladly recommended by our engineers.

"Merco" Compound

A metallic lead seal that makes joints *permanently leak-proof*. Use it on screw thread or gasketed joints, boiler repairs, manhole plates, etc. Easily applied with brush. May we send a free demonstration can?

MERCO NORDSTROM VALVE COMPANY

SUBSIDIARY OF THE MERRILL COMPANY

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Boston: 184 Boylston St. Dallas: Magnolia Building Los Angeles: New Orleans: Pittsburgh: Clark Building
Buffalo: Genesee Building Detroit: 2842 W. Grand Blvd. 556 South San Pedro St. Masonic Temple Building San Francisco: 343 Sansome St.

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Factories: Oakland, California and Belleville, New Jersey. *Canadian Manufacturers:* Peacock Bros., Ltd., Montreal, Cobalt, Winnipeg, Vancouver. *England:* Audley Engineering Co., Ltd., Newport, Shropshire. *Buenos Aires, Argentine:* General Electric, Soc. Anon., Victoria 618 Esq. Peru.

Ductility Increases the Usefulness of Steel Pipe
Republic Steel Pipe adapts itself to installations of a character employing bending, because it is sufficiently ductile without weakening its internal resistant strength.
Where the pipe is to be used for special bending, flanging, swedging, coiling or other severe forming operations, a special pipe for such purposes is determined in Republic Testing Laboratories . . and the unusually high degree of ductility necessary, is assured by definite manufacturing processes controlled from ore to finished pipe. Thus proper ductility or "give in working" combines with "strength" in promoting more satisfactory, more lasting service.
RS
REPUBLIC
IRON & STEEL CO. YOUNGSTOWN O.
STEEL PIPE

Marietta, Ohio

Oil in this area dates way back to the year 1816 when the first oil was encountered. This was found in a well being drilled by Joseph and Samuel Caldwell, near Caldwell, in Noble County, who were drilling for salt water by the spring pole method. At 180 feet they struck oil, but drilling was continued to a depth of 570 feet, where salt water was found. The oil in this well spoiled it for making salt. The oil was produced by soaking a blanket in the salt water and wringing out the oil, which was put in small bottles and sold as Seneca Oil for 25c per bottle, being recommended very highly for rheumatism, sprains and bruises.

In 1860 the first well drilled for oil was drilled by James Dutton on his own farm, southeast of Macksburg, Noble County. He used the spring pole method and struck a heavy oil at a depth of 67 feet, the well being put on a pump and made 100 barrels per day. Oil from this well was hauled in barrels to Lowell, Ohio, and shipped from there by boat and sold as high as $28.00 per barrel.

The Rice well, drilled in 1863 at the edge of the village of Macksburg, about a half mile from the original Dutton well, has been pumping for sixty-seven years. Its maximum production never exceeded 15 barrels per day and it is still making one-third of a barrel per day of Pennsylvania grade oil.

The Macksburg pool produced oil from fifteen different sands, the first being the heavy oil sand, found from 60 to 80 feet, and the last sand, known as the Gordon sand, at about 1700 feet. Many wells in this area produced 100 barrels per day and a number of them that were drilled in the sixties and seventies are still pumping.

Another large pool was discovered in 1860, known as the Joy Pool,

located in Morgan City. Oil was found at 37 feet and some of the wells drilled in the early days of this pool are still pumping.

The Cow Run Pool, located in Washington County, was discovered in February, 1862. The first well was known as the School House well and produced oil until two years ago, production of this well coming from a depth of 568 feet. Other producing sands in this pool were found at depths of 100 to 600 feet.

AXELSON MANUFACTURING CO., LTD.
Sucker Rods, Pull Rods, Working Barrels, etc.

DONOVAN BOILER WORKS
Oil Country Boilers and Tanks

BEAUMONT IRON WORKS COMPANY
Dreadnaught Rotary Drilling and Pumping Equipment

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Our Own Specifications

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Tubular Goods, Seamless and Lapwelded

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"Sure Grip" Line of Pumping Equipment

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Valves for the Oil Industry

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Fittings and Valves for all branches of the oil industry.

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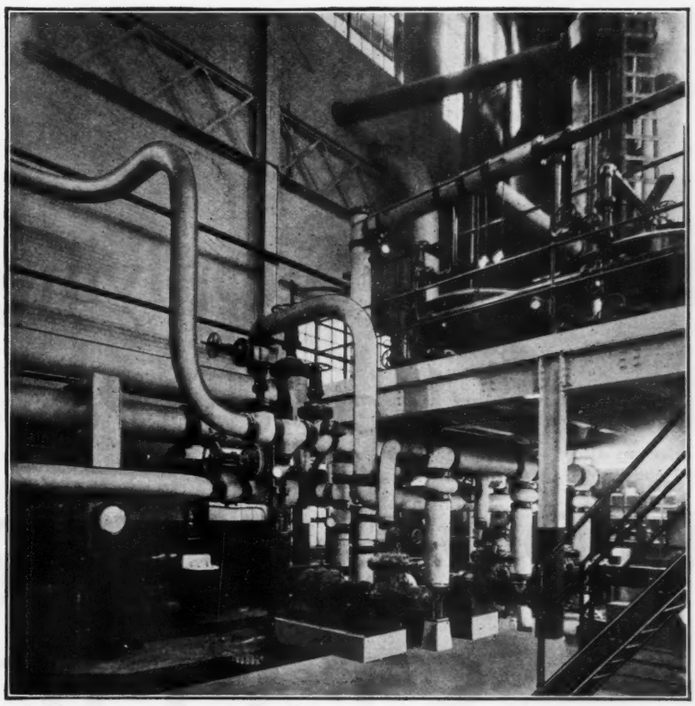
Manila Cordage, including Drilling Cables, Bull Ropes, Cat Lines, Etc.

FRICK-REID
SUPPLY CORPORATION
Pittsburgh, Pa. . . . Tulsa, Okla. . . . and Branches



ATWOOD

Piping for Field and Refinery

SINCE its first welded piping installation in 1908 (still in operation), the ATWOOD Pipe Fabrication Department has ever been on the alert to meet more fully the fundamental requirements of Oil and Gas piping systems, in Field and Refinery. These requirements are reliability, accessibility, reduction of deterioration to a minimum, and incorporation of the most advanced engineering knowledge to maintain the highest operating efficiency for the service intended.

All these requirements are met to the highest degree in the installation partially illustrated above, one of the newest and largest blast furnace and coke plants in the country.

Many of our customers rely entirely upon ATWOOD Service not only for the fabrication of a piping system, but also for its design and installation. Why not profit by their experience? "He gains wisdom in a happy way who gains it by another's experience."

PITTSBURGH VALVE, FOUNDRY & CONSTRUCTION CO.
PITTSBURGH ~ PENNA.

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Boston, Mass.	185 Devonshire Street
Cleveland, Ohio	858 Rockefeller Bldg.

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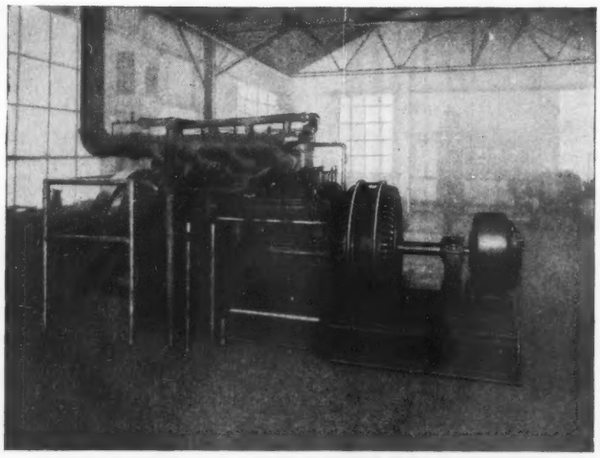
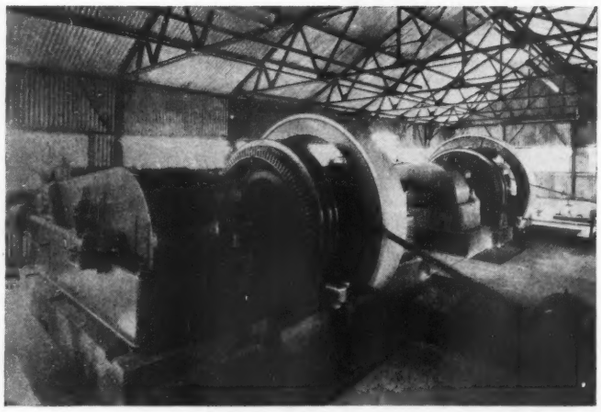
Houston, Texas	Maintenance Eng. Corp., 1400 Conti Street
Atlanta, Ga.	Moore-Brosch Eng. Co., Forsyth Bldg.
Philadelphia, Penna.	R. J. Crozier Co., 10 South 18th Street
Los Angeles, Cal.	John G. Bell Co., 712 East Sixth Street

VALVES · WELDED PIPING · FITTINGS

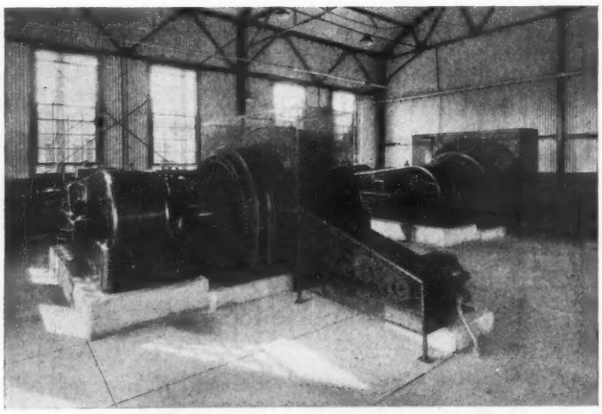


63 kv.-a., 400 r. p. m. engine type E-M Alternator driven by a gas engine. This unit supplies power in an oil field compressor station.

Supplying Electrical Power in COMPRESSOR STATIONS



Two 156 kv.-a., 225 r. p. m. gas engine-driven E-M Alternators at the gasoline plant of the Barnsdall Oil Co., Earlsboro, Oklahoma.



Two 150 kv.-a., 225 r. p. m. engine type E-M Alternators driven by gas engines at the Tallant, Oklahoma, compressor station of the Cities Service Gas Company. Ten E-M Alternators have been furnished this company.

Long specialized experience in designing and building alternators, makes E-M engine alternators the "last word" in reliability. Their high electrical efficiency and unfailing dependability render them a most practical power source.

E-M Alternator ratings are standard as listed by the National Electric Manufacturers Association; and E-M has also collaborated with engine builders in hooking up with standard engine ratings and speeds.

E-M Engineers—specialists in this type of equipment—can give operators in the oil industry invaluable service in recommending proper alternator applications. E-M can always make quick delivery; and keeps shipping promises. E-M Alternators are backed by continuously available service of E-M factory-trained electrical engineers.

For particulars of design and construction, write for descriptive literature.

Electric Machinery Mfg. Company
1349 Tyler St., N. E.
MINNEAPOLIS MINNESOTA

Offices in Principal Cities Including

Tulsa: 217 E. Archer St.
Houston: 1024 Post Dispatch Bldg.
Dallas: 4136 Hawthorne Ave.
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EM ALTERNATORS

FOR ECONOMICAL, DEPENDABLE GENERATION OF ELECTRICAL POWER

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The FISHER LINE *for* . . SERVICE *every time*

Steam Pump Governors
[10 to 10,000 lbs.]
Boiler Feed Pumps
Fuel Oil Pumps
Vacuum Pumps
Receiver Tank Pumps
Pump By-Pass Valves
electric and power driven pumps
Reducing Valves, Pressure Regulators
for all pressures—liquids, gases, steam
Differential Pressure Regulators
Vacuum Regulators
Strainers
pipe, suction and drip pocket
Liquid Level Controllers
direct and remote type
Lever Valves
air, gas, or liquid
Float Valves
Fluid Mixers
Hydraulically Operated Valves
Relief Valves
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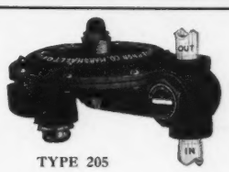
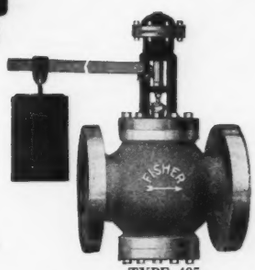
Gasoline Traps—Grease Traps
Exhaust Heads
Steam and Oil Separators
Drip Pockets
Vapor Pressure Controllers
for oil storage tanks
Boiler Gas Fuel Governors
Gas Engine Fuel Regulators
Automatic Gas Relief Valves
Gas Pressure Regulators
main and house service
Liquefied Petroleum Gas Regulators
for gas cylinders
Gas Water Traps



TYPE 205

TYPE 158



TYPE 405

Fisher House Service Gas Pressure Regulators or Reducing Valves

Type No. 205

Fisher offers three types of domestic or house service regulators for use on practically every low-pressure domestic or industrial installation. All types will operate with the same precision and maintain an even reduced pressure, whether installed inside the house or building or outside for field use.

Fisher Engine Fuel Regulator

Type No. 158

The Type No. 158 is particularly built for maintaining within very close limits the pressure of gas supplied as fuel for gas engine operation. It is simple in design, positive in operation and constructed of the best materials obtainable.

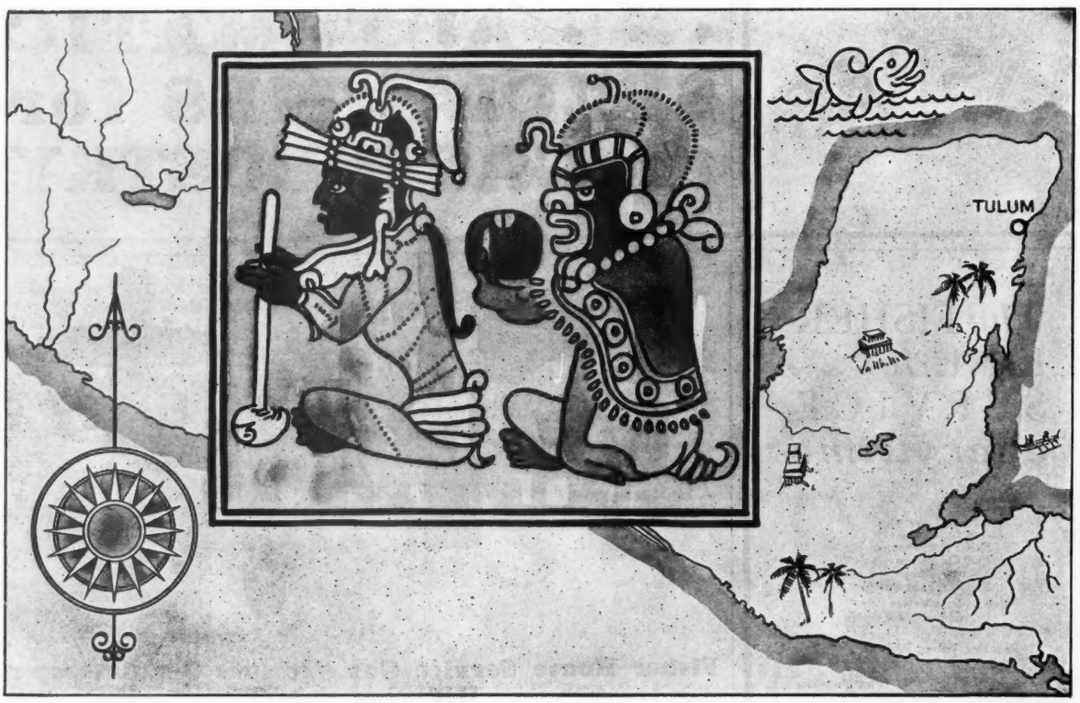
Fisher Gas Pressure Regulator or Reducing Valve

High Pressure Type No. 405

Massive body construction, extra heavy bolting, powerful lever ratios and corresponding strength of all other parts. In addition to strength, the Type No. 405 provides close regulation, interchangeable parts, renewable valve seats and other desirable features of design. It is intended for service in reducing high-pressure gas from the well to the required reduced pressure supplied to the low-pressure regulators.

FISHER GOVERNOR COMPANY
900 FISHER BLDG.
Marshalltown, Iowa

HANLON-WATERS
INC.
General Offices : TULSA, OKLA. Box 1404
HOUSTON FORT WORTH DENVER



NITROSE has the same quality as the dyes the Maya used

Stocks for Immediate Shipment

Peoria	New York City
Cleveland	Detroit
Los Angeles	San Francisco
Rochester	Pittsburgh
St. Paul	Kansas City
Seattle	Montreal, Can.

Porto Rico

On the walls of the Temple of the Frescoes, a part of the ancient city of Tulum in what is now the state of Yucatan, Mexico, one finds dateless paintings the colors of which are as brilliant today as when primitive Mayan artists first applied them.

These everlasting stains have withstood centuries of exposure. But NITROSE does more! Not only is it unaffected by extremes in temperature (from sub-zero up to 500° F.) but rust, gas, grease, chemicals, acids, brine solutions, ammonia and alkali corrosions surrender to this black liquid armor that spreads like paint and holds like a weld.

NITROSE insures longer protection than any paint you can buy. Applies with no more preparation than wire brushing loose scale. Needs no mixing, no priming coat. Can be spread over wet, hot or oily surfaces without cracking, peeling or blistering. Only one coat is needed.

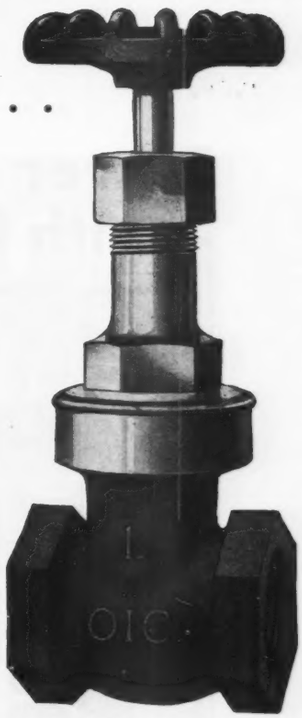
A test of NITROSE on your own equipment, can be made without any obligation to you. Write for details.

The NITROSE Company
1500-N Peoria Life Bldg., Peoria, Ill.

NITROSE

THE OLD TIMER SAYS . . .

"Whatever you want in a VALVE . . . you'll find in OIC's"



JUST what is it you want in a valve?

If it's strength, you'll be impressed with the liberal distribution of metal and strong construction at all vital points in OIC Valves.

Where the service calls for valves of this class, examine OIC's and you will be impressed with their careful design, coupled with *ability to withstand high pressure.* Notice the sturdy, well balanced design, the strong threads and unusually heavy stem.

And of course you're interested in low maintenance. Examine, then, the careful machining and precision workmanship on OIC's. Remember that long experience has enabled OIC engineers to perfect designs that function with the least amount of wear. Remember, too, that hundreds of oil men specify OIC solely because of the minimum amount of attention they require.

And naturally you want *safety.* OIC Valves carry a far greater factor of safety than will ever be needed for absolute protection.

Length of service, too, is important. For the final cost of a valve depends largely on how long it lasts. And in this respect OIC Valves offer probably their greatest advantage. It stands to reason that no valve built so honestly, with so thorough an understanding of the oil man's needs could fail to last for many years —even when subjected to the hardest usage.

OIC STANDARD BRASS GATE VALVE
For steam working pressures up to 125 pounds. Will stay on the job without necessity of frequent replacements. Can be repacked wide open and under pressure. Each valve thoroughly tested before leaving factory.

We would like to give you complete details of OIC Valves and suggest methods for lower cost operation in your plant. Just drop a line to OIC at Wadsworth, Ohio.

THE OHIO INJECTOR CO., *Wadsworth, Ohio*

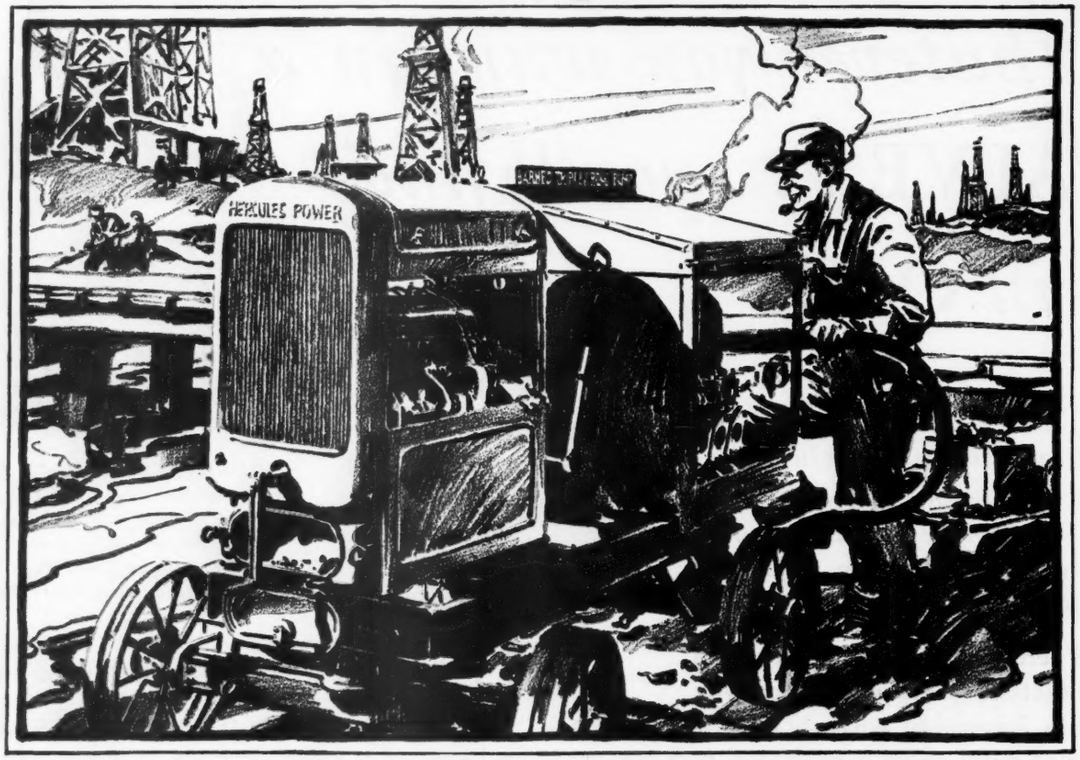
MAKERS OF DEPENDABLE VALVES, INJECTORS, AND SPECIALTIES FOR STEAM, OIL, WATER AND GAS SERVICE.

OIC Valves are carried in stock and distributed by leading supply stores in the Oil Country.

Good Valves *made by the* OIC folks *at* Wadsworth, Ohio

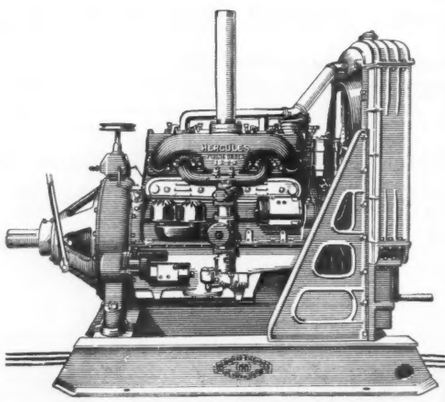
OIC

Power for Cross-Country Pumping —with Hercules Engines on the Job



Driving a Barnes Triplex Road Pump steadily, day after day, a Hercules Power Unit insures an unfailing high-pressure flow of water to distant rotary drills on the leases of T. B. Slick, Incorporated, in the Seminole, Oklahoma, oil fields.

In the oil fields—where steady operation is essential—Hercules Engines are particularly noted for their outstanding reliability. Powerful—simple in design and rugged in construction—they are built throughout to withstand the strain of grueling 24-hour-a-day service with a minimum of attention and expense.



HERCULES MOTORS CORPORATION
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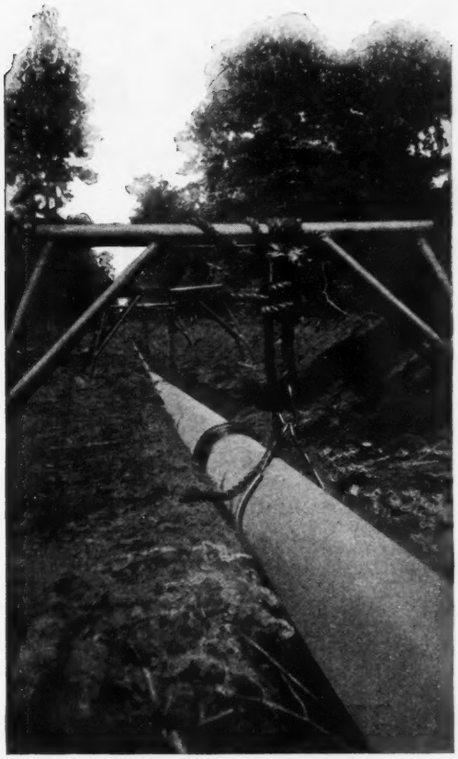

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The Oil and Gas Journal

PRODUCING REFINING ENGINEERING MARKETING

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Refinery Section Starts on Page 134

General Outlook Shows Improvement

Highest daily average estimated total production in 1929, week ended Aug. 24, 2,975,435 bbls. Lowest in 1929, Dec. 27, 2,595,320 bbls.

Success Crowns California Conservation Efforts. Refinery Curtailment Plan Will Insure Prosperity

By Andrew M. Rowley

Highest daily average estimated light oil production in 1929, week ended Sept. 14, 2,534,524 bbls. Lowest in 1929, Apr. 13, 2,142,036 bbls.

Continued and substantial improvement in the general situation affecting the petroleum industry is being felt as a direct result of the success attending the various conservation movements designed to bring production more nearly to market requirements. California operators are jubilant over the progress being made there in efforts to hold the output of crude oil to 609,000 bbls. daily and claim this objective will be achieved within the next two weeks. Oklahoma operators decided on Tuesday of this week to continue the conservation agreement, which provides that production be held to near 600,000 bbls. daily, for another three months. The court decision upholding the validity of the California natural gas conservation law is expected to be a most important factor in future development in that state.

The latest report covering the refining situation does not reflect the decision of a majority of the refining companies to curtail their throughput of crude and operations to a six-day basis, or a reduction of one-seventh. Figures compiled by the American Petroleum Institute for the past week show an increase of 150,000 bbls. in crude run to stills and a further addition of 850,000 bbls. of gasoline to storage, as compared to the totals for the previous week.

A substantial reduction in the quantity of crude run to stills with a resultant material withdrawal of gasoline from storage is necessary at this time to insure prosperity for the industry as a whole during this year. It is expected inauguration of the refinery curtailment program will be reflected in figures on operations and stocks for the current week.

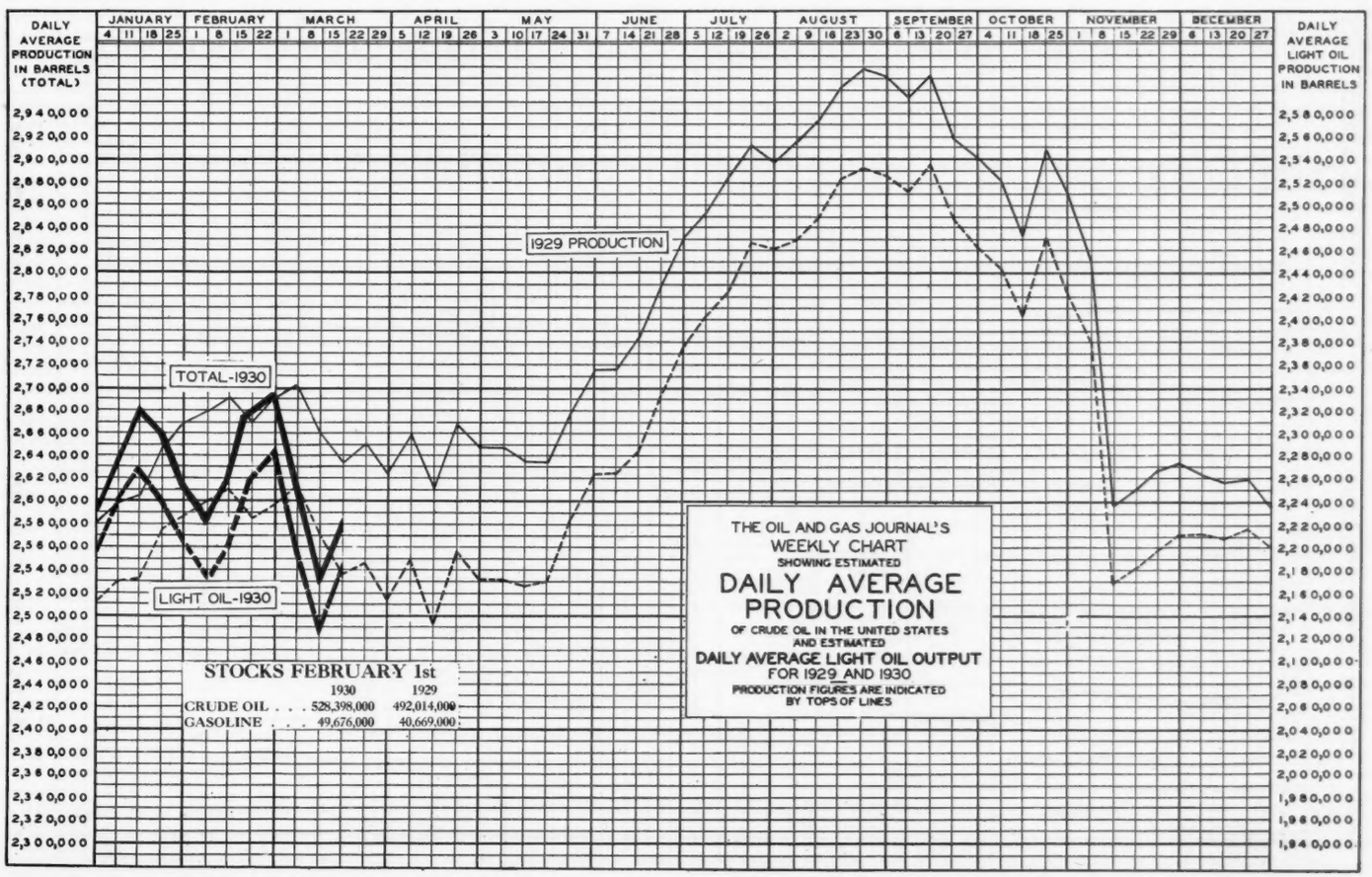
The increase in crude oil prices announced last week in California was gratifying to the entire industry, giving as it did, concrete proof of the fact the situation in California had improved and indicating a desire upon the part of the large buyers to bring the crude oil price schedule up to a basis where producers might begin to operate at a profit.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended March 15, and a comparison with the previous week follows:

	Mar. 15		Mar. 8	
	Light	Heavy	Light	Heavy
Oklahoma—				
Oklahoma City	85,095	.....	62,985	.....
St. Louis-Pearson	44,280	.....	43,570	.....
Seminole	237,470	.....	210,320	.....
Northern Miscellaneous	228,710	.....	230,740	.....
Southern Fields	55,690	.....	55,930	.....
Total Oklahoma	651,245	.....	603,545	.....
West Texas—				
Hendricks	90,735	.....	92,040	.....
Yates	142,049	.....	140,290	.....
Remainder	112,754	.....	110,094	.....
Total West Texas	345,538	.....	342,424	.....
North Louisiana	36,645	5,350	36,695	5,050
Arkansas	17,540	41,705	16,900	41,205
North Central Texas	132,153	.....	131,001	.....
Texas Panhandle	91,508	.....	86,995	.....
East Central Texas	25,871	.....	26,019	.....
Kansas	116,210	.....	113,540	.....
Total Mid-Continent Area	1,416,710	47,055	1,357,119	46,255
Gulf Coast	.....	203,420	.....	205,315
Southwest Texas	.....	62,839	.....	64,471
Eastern	134,000	.....	135,000	.....
Rocky Mountain Area	74,833	.....	69,898	.....
California—				
Santa Fe Springs	158,100	.....	160,000	.....
Long Beach	104,200	.....	107,000	.....
Huntington Beach	30,100	.....	34,000	.....
Elwood	37,500	.....	36,500	.....
Ventura Avenue	45,150	.....	45,000	.....
Seal Beach	25,500	.....	26,000	.....
Remainder of State	160,000	85,000	163,250	88,500
Total California	560,550	85,000	571,750	88,500
Total United States	2,186,093	398,314	2,133,767	404,541
Grand Total	2,584,407		2,538,308	

→ **Total Increase, 46,099 Bbls.; Light Oil Increase, 52,326 Bbls.** ←



Oklahoma Gasoline Market Improves

Prices on Domestic Grades Advance Fractionally, Reflecting Better Operating Conditions and Greater Consumer Demand

By C. O. Willson

Reflecting a situation that was quite general throughout the United States during the past week a better tone developed in the domestic grades of refinery gasoline in Oklahoma. Improvement was also noted in kerosene.

The situation in regard to other products showed little change. Natural gasolines with a fair movement were holding their own with the prevailing market on the principal Grade AA, fractionally higher than it was a week ago. Although in most of the Mid-Continent refining areas fuel oil and gas oil are considered sluggish, buyers in Oklahoma the first of the week found little material offered for prompt shipment and prices were firm. Furnace oil demand has declined to the point where many refiners have reduced their output so they are only furnishing regular customers who are willing to pay more than is obtainable on the present spot market.

With a strong demand for the better grades of neutral oils general throughout the Mid-Continent a general revision upward in prices is predicted before the end of the month. The bright stock movement on contracts is improving with little activity in the spot market. Wax continues inactive.

Better Outlook

The improvement in the U. S. Motor gasoline market is due both to an improved current demand and the more optimistic outlook for the spring and summer.

The improvement in the California situation which was responsible for the higher crude oil prices made effective in California fields last week is largely responsible for the latter feeling. The overproduction of crude oil in California last year and the consequent record increase in gasoline output at California refineries was the controlling factor in the generally low prices at refineries and it has been feared that California operations would occupy a still more dominant position in 1930. East Coast refiners have felt this competition directly due to the shipments of gasoline from the West Coast and indirectly the California prices spread to the Mid-Continent and other interior refining groups.

It is now felt for the first time through voluntary curtailment in both the crude oil and refining divisions, the California situation is well in hand. Many believe that this balancing of supply and demand can be continued throughout the year. This development does not necessarily mean a decline in the California shipments to the East Coast but the eastern market is at least assured that the supply of low priced California gasoline will not increase as it did last year. From the gasoline market angle this in interpreted as pointing to an improvement in prices both for export and domestic movement at coastal points. This development would in turn make possible an improvement in refinery tank car market at interior points.

Curtailment of Runs

The fact that a number of major refinery operators have curtailed their crude runs to stills under the Wilbur plan is also interpreted favorably by prognosticators who are studying the gasoline situation. While this curtailment has failed to receive general support by refiners, its present limited application should tend to slow up increases in gasoline inventories which have cast a shadow over the refinery market for several months.

Various reasons have been given by refiners who have refused to reduce their runs. The usual explanation is that they had already curtailed their runs and were not accumulating excess supplies. Many Oklahoma and other Mid-Continent refiners are outspoken in their contention that inland refiners of the southwestern states as a group have held back their plant operations while refinery owners in several other groups have expanded rapidly and produced excess quantities of gasoline which have been a burden to the entire market.

In brief, the attitude of these operators can be summarized by the statement of one: "Let those responsible for the overproduction do the curtailing."

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REFINED MARKET BAROMETER

Practically all refining groups reported a better feeling in the tank car market for refined products. Price increases were not general but in some areas a downward trend in quotations was stopped with prospects of early improvement. The curtailment of refinery operations at a number of plants including several of the major operators and the improved outlook in the crude oil situation were largely responsible for the better market tone. Several areas reported larger demand for gasoline and this was reflected in slight advances in tank car quotations on domestic grades in the Mid-Continent and Middle West. The kerosene market also showed some improvement in the same areas and also in the East Coast. The possibility that fuel oil and gas oil would not be as freely available in the coastal points as it has in the past has strengthened that market. Natural gasoline prices were generally steady. The situation in regard to lubricants and wax is mixed with no definite general trends. A more active demand was reported in stocks used for compounding summer motor oils. Wax prices were generally unchanged.

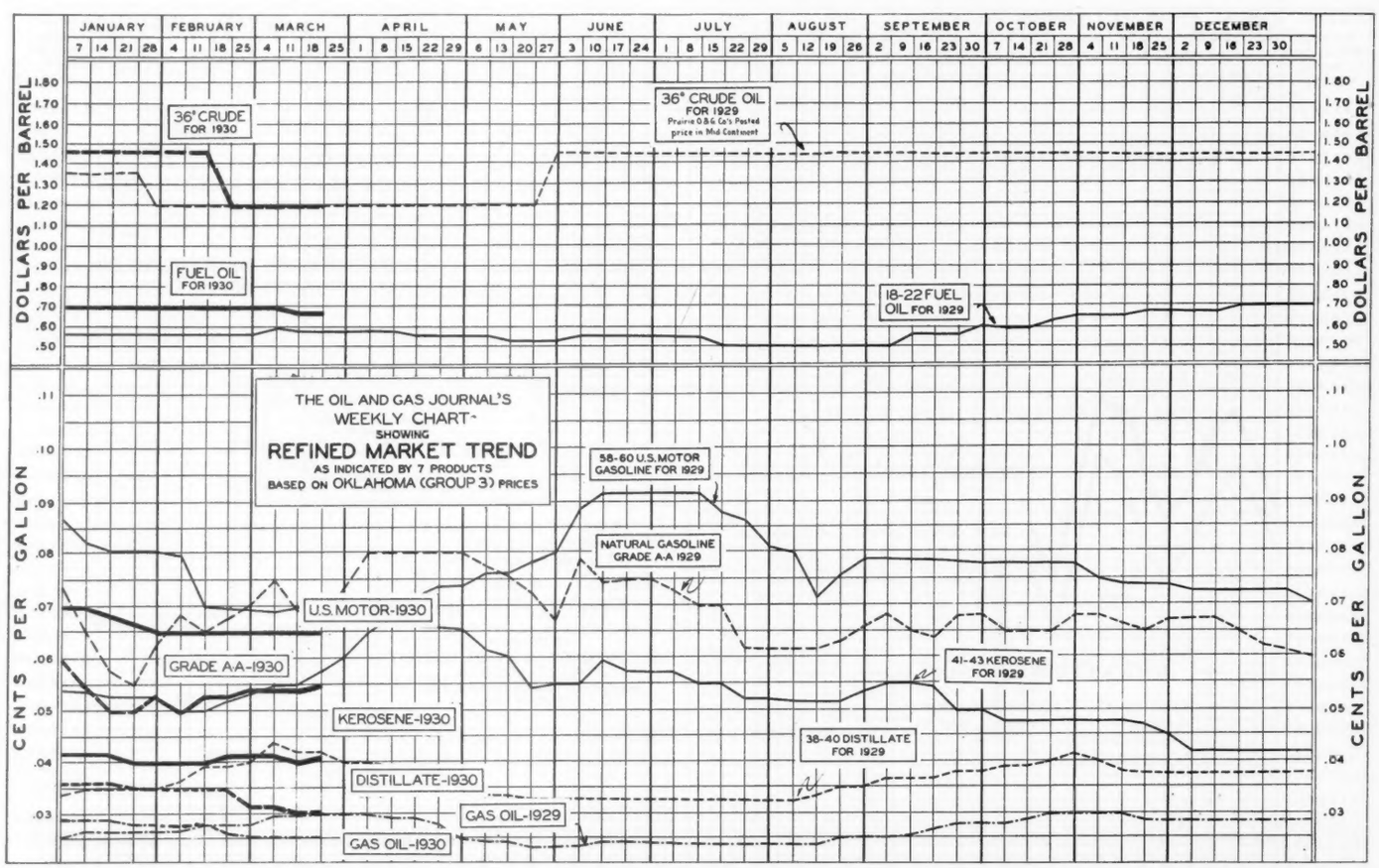
Mid-Continent—Domestic grades of refinery gasoline and kerosene stronger. Good movement of natural gasolines at firm prices. No important changes in fuel oil and gas oil prices. Furnace oils weak. Neutral oils strong. No change in steam refined and bright stocks and wax.

East Coast—Better tone in practically all products as result of refinery curtailment programs which are expected to bring an end to excessive supplies. Predicted decline in refinery gasoline prices not expected to materialize. Kerosene steady. Fuel oil steady. Mixed trend in cylinder stocks.

Chicago—More active demand for gasoline with wide range in prices as quoted by several refining groups. Industrial fuels more active. Better demand for kerosene. Distillates quiet.

Gulf Coast—Heavy movement of fuel oils. Steady demand for pale and red oils at firm prices. Expect improvement in refinery gasolines.

Pennsylvania—Few price changes with improved demand for gasoline and kerosene. Fair demand for cylinder stocks. Fuel oil prices lower.



California Conservation Law Upheld

Initial Enforcement of Gas Act May Be Started at Santa Fe Springs Within 30 Days. Upward Revision of Crude Oil Price Schedules

By L. P. Stockman

An upward revision in crude oil price schedules and a decision by Superior Judge William Hazlett that the gas conservation law is constitutional were outstanding developments in California during the past week. The increase in crude oil prices posted by the Standard Oil Co. came unexpectedly but the decision of the Superior Court, on the other hand, has been anticipated by those who have viewed the gas law from an unprejudiced standpoint. After announcing his decision on the validity of the gas law, Judge Hazlett ordered the defendants to show cause why a temporary restraining order should not be issued as requested by the State and the hearing to decide this point was immediately started. It might not be amiss to call attention to the fact that while every operator at Santa Fe Springs has been made a defendant only a few are actually fighting enforcement of the gas law.

All of the major companies and practically all independent operators advised the court at the beginning of the hearing several months ago that they were in sympathy with the statute enacted by the California Legislature and many filed briefs to support the contention of State officials. Unless some new technicality can be found to delay matters, initial enforcement of the gas law should be started at Santa Fe Springs within 30 days. Immediately after disposing of this action, Judge Hazlett will begin hearing a similar complaint against Long Beach operators. April 7 has been tentatively set as the date for the hearing on the Long Beach complaint but the time may be extended as this action is dependent on the outcome of the Santa Fe Springs' case.

The Crude Price Increase

The Standard Oil Co. surprised the boys this week by announcing an increase in the posted price of crude oil. This raise, which included every field in the State except Kettleman Hills, ranged from 1 cent on heavy oil to 25 cents a barrel on light refinable crude. The upward revision in crude oil schedules came as a distinct surprise in view of the highly competitive condition of the gasoline market as the large quantity of gasoline being sold by independent refiners at prices substantially below standardized quotations is cutting into the gallonage of major companies. The raise in crude oil prices will obviously increase refinery costs to a certain extent but a boost of 25 cents a barrel in crude oil is not expected to completely change the refined oil market where independent refiners are underselling the majors from 1 to 5 cents a gallon on gasoline. In southern California gasoline is retailing all the way from 15 cents a gallon to 19½ cents, tax included. At Portland, Ore., and Seattle, Wash., where gasoline dropped to 12½ cents a gallon last week, motor fuel is at present commanding 15½ cents per gallon at service stations. As the situation stands, the major companies, instead of retaliating with lower gasoline prices, are apparently going to grin and bear it. The only question is whether they can consistently continue to indefinitely laugh off their decreased gallonage which is being acquired by independent refiners through their ability to undersell the majors under present conditions. If independent refiners actually reduce their runs to stills by operating on a six day basis conditions will improve but it is doubtful if this proposed reduction will become general due to the inability of smaller refiners to store the excess crude.

Statement by Reeser

E. B. Reeser, president of the American Petroleum Institute and president of the Barnsdall Oil Corp., issued the following statement: "The advance in the price of crude oil was a proper step in the conservation movement and is positive proof that it pays. It is only fair that the producer should be rewarded for his efforts in curtailing production, and it will help the landowner as well by increasing his profits from royalties. This advance is not to be regarded as an indication of anything other than the willingness of major companies to show appreciation for co-operation in balancing production and consumption. I hope in the name of the industry that this new price schedule will assist to maintain the State's output at the volume agreed upon."

The new prices as posted by Standard for Long Beach, Seal Beach, Alamitos Heights and Huntington Beach call for 70 cents a barrel for 14 to 17.9 gravity oil and run to $1.60 a barrel for 32 and above gravity oil. Inglewood and Torrance are quoted at 70 cents a barrel for 14 to 17.9 gravity and from that amount to $1.42 a barrel for 28 gravity. The new schedule for Midway-Sunset, Elk Hills and Buena Vista Hills calls for 55 cents a barrel for 14 to 17.9 gravity and then on up to $1.65 for 33 gravity and above. Lost Hills, Coalinga and Wheeler Ridge start with 55 cents a barrel for 14 to 17.9 gravity and then the first field goes up to $1.77 for 35 gravity, the second to $1.55 for 35 gravity and the third to $1.22 for 27 gravity.

Richfield, Whittier, Montebello, Coyote Hills and Brea-Olinda start with 70 cents a barrel for 14 to 17.9 gravity crude and then the first field goes up to $1.50 a barrel for 30 gravity, the fourth to $1.45 for 30 gravity and the fifth to $1.55 for 31 gravity and above. Newhall McKittrick and Kern River prices are 55 cents a barrel for oil from 14 to 19.9 gravity. Santa Fe Springs' new prices range from 92 cents for 21 gravity oil to $1.90 a barrel for 39 gravity and above. In the high gravity fields Athens, Rosecrans and Dominguez have a new schedule of $1.14 per barrel for 24 gravity and then up to $2.20 for 42 gravity. Elwood Terrace starts with $1.32 per barrel for 34 to 34.9 gravity and runs to $1.84 for 42 to 42.9 gravity. Kettleman Hills, with 55 gravity oil and above, remains unchanged at $1.65 a barrel.

Union Meets Increase

It will be noted that although no increase was made in the price of heavy unrefinable crude in Southern California, heavy oil in the San Joaquin Valley fields was raised 5 cents a barrel. In southern California 14 to 17.9 gravity oil was left at 70 cents a barrel, while similar crude in the San Joaquin Basin was raised from 50 cents a barrel to 55 cents. Crude ranging between 11 and 13.9 degrees was raised 5 cents a barrel by the Union Oil Co., increasing the price from 45 to 50 cents a barrel. A new innovation will be noted in the Standard's new crude schedule in that for the first time a price has been quoted for oil f.o.b. ships at Elwood. The Union met the Standard's new prices and both schedules released Wednesday night were made retroactive to 7 a. m. the preceding Tuesday. The Union, in addition to approving the Standard's schedule, posted new prices for Orcutt and Santa Paula. In the former field 14 to 17.9 gravity oil will bring 55 cents a barrel, while 26 gravity oil and above will command a price of 1.26 per barrel. At Santa Paula 14 to 14.9 gravity oil will be paid for at the rate of 70 cents a barrel, while crude testing 33 degrees or higher will be bought for $1.58 per barrel. The Union did not post a price schedule for Ventura Avenue this time, leaving this up to the Associated, General Petroleum and Shell. Crude in this field ranges from 70 cents a barrel for 14-degree oil to $1.71 per barrel for crude testing 35 degrees or above.

Judge Hazlett's Decision

Judge Hazlett, in handing down his decision on the constitutionality of the gas law, stated that "it appearing that there is a great and unreasonable waste of gas in the Santa Fe Springs Oil Field it is my purpose to assume, as the evidence in regards to it is supplemented by sufficient other proof so that no great harm may be done to any single operator, to issue a temporary restraining order putting a stop, at least in part, to the tremendous waste. And, upon taking all of the proof that may be offered to make such modifications of the ad interim order as may seem proper."

In upholding the act, Judge Hazlett said, "I have concluded that the Legislature has power to enact legislation to control and limit the production of oil and gas, those resources being such natural resources that the general public, particularly in the use of gas, has a direct interest in the conservation of them so that they may not be wasted, but may continue to be used in the homes, public buildings and factories for the greater development of our State. I am finally satisfied that the great natural resources not made by the hand of man should be and can be conserved by legislation and their taking and use limited for the general public good and for the good of those owning or producing. These general principles are established by our own courts, with special reference to water and by the United States supreme court and the courts of last resort of many other states in relation to the production and use of petroleum and natural gas."

In determining whether the gas conservation act is a valid exercise of the police power of the State, Judge Hazlett held that "in construing the decisions of the text

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California's Curtailment Nears Mark

Committee Gratified Over Co-operation and Belief Expressed That Production Will Be Down to Allowable Within 10 Days

By L. P. Stockman

LOS ANGELES, Calif., Mar. 17.—The outstanding feature of the last meeting of the general committee on oil curtailment in California was the report by the fact-finding committee that the production of the entire State is within striking distance of the allowable set by the general committee for the two-week period just ended. This report set the total State production as of March 15 at 650,774 bbls. daily, the allowable during the period having been 605,218 bbls.

Reports of Umpires Grimm and Anderson indicated that the operators throughout the State are doing their utmost to co-operate in the curtailment plan and that there appears to be no unsurmountable obstacle in the way of reaching in the near future the established allowable production figures. While many of the fields are well under their maximum allowable production, there are a few, notably Santa Fe Springs and Long Beach, that have been slower on account of difficulties that have arisen in getting down to their respective quotas. This is due to the completion of new wells in the southeast end of Long Beach and difficulties in adjusting potentials at Santa Fe Springs. On account of the unusual conditions existing in these two major fields there was discussion as to whether the existing percentage cuts 43 per cent for the flush fields and 41 per cent for the old line fields, should be revised at this time.

New Figures Established

It was decided to ask the fact-finding committee to establish new potential and allowable figures to become effective March 17. In accordance with this plan the technical subcommittee revised its figures, bring them up to date. Under the new revision Santa Fe Springs is credited with a potential daily production of 232,140 bbls., an allowable of 132,320 bbls. and an actual daily production on March 15 of 155,601 bbls. Long Beach is credited with a potential daily production of 162,000 bbls., an allowable of 92,340 bbls. and an actual production on March 15 of 105,193 bbls. Ventura Avenue has a current potential of 74,170 bbls. daily, an allowable of 42,277 bbls. and an actual daily production of 46,051 bbls. on March 15.

It will be noted from these figures that the fact-finding committee has reduced the potential and allowable daily production of Santa Fe Springs and increased the potential and allowable of Long Beach. The potential and allowable of Ventura Avenue remained unchanged. On the recent six-day flow test these three fields established daily potentials of 262,284 bbls., 156,880 bbls. and 74,170 bbls.

Elwood Potential Increased

Owing to the recent completion of a new large well the potential daily production of the Elwood Field was increased from 64,579 bbls. to 66,152 bbls. This increase in the potential boosted the allowable production from 36,810 bbls. to 37,707 bbls. The potential daily production of the Seal Beach Field was decreased from 41,053 bbls. to an even 40,000 bbls. This was reflected in the allowable daily production which dropped from 23,400 bbls. to 22,800 bbls.

As a result of the fact-finding committee's new revision, California's total potential daily production is estimated at 1,085,527 bbls. The allowable production of the State under the new revision is 605,218 bbls. The general committee expressed gratification at the splendid co-operation received and there appeared to be no doubt in the minds of its members that the State will be down to its allowable within the next 10 days.

Co-operative Test on Pipe Corrosion

Representatives of Bureau of Standards, American Petroleum Institute and Manufacturers Decide on Details

By L. G. E. Bignell
Petroleum Engineering Editor

An important meeting was held in Tulsa March 18 when the representatives of the U. S. Bureau of Standards, K. H. Logan and Dr. Gordon N. Scott, presided over a joint session of the members of the committee on corrosion of oil field equipment for the American Petroleum Institute and a group of representatives of the manufacturers of protective pipe line coatings.

This meeting was called for the purpose of making final decision on the many details to govern the co-operative pipe line test to be conducted under the supervision of the U. S. Bureau of Standards, and during the past week there have been several meetings of members of the various groups interested which culminated in the joint meeting held on Tuesday at the Mayo Hotel.

The manufacturers of pipe line coatings have formed an association to be known as the "Underground Pipe Protective Institute" and this body will direct the selection of materials to be used as protective coatings for the co-operative test. The A.P.I. corrosion committee will assist Mr. Logan and Doctor Scott in the selection of the pipe lines where these tests are to be conducted and all the work will be supervised by Mr. Logan and Doctor Scott.

The joint meeting was well attended by representatives of the various pipe line companies interested in these tests and by the manufacturers of protective coatings. Subcommittees of the manufacturers met after the general meeting and selected representative coatings of the several types to be tested and submitted their decisions to Mr. Logan at the afternoon session.

Plans Outlined

At the afternoon session Mr. Logan again presided and outlined to the manufacturers and A.P.I. committee his proposed plans and the cost of this work. The A.P.I. corrosion committee is to make report of its work to the officials of the Institute for their formal approval and when this has been granted the test will be started promptly.

These tests are so planned that they will take advantage of the very excellent work already done by Mr. Logan and Doctor Scott on pipe line corrosion and soil analysis, and will therefore eliminate many types of soil known to present only slightly corrosive conditions. Soils that will afford opportunity for what may be termed accelerated corrosion conditions will be selected to a large extent for these tests and in this way it is hoped that the desired results can be secured in the shortest possible time, and without the duplication of the work already done and now available to all interested.

It is gratifying to the leaders in this movement to note the very whole-hearted support given by the manufacturers of protective coatings and as about 18 representative types of materials have been selected for these tests it is felt the results will give the necessary data from which the economic values of these various types of coatings can be judged.

The report of the A.P.I. Corrosion Committee is printed herewith and also a statement from the Underground Pipe Protection Institute. It was noted that the report of the Underground Pipe Protection Institute Committee closely followed the plans outlined in the A.P.I committee's report, so closely, in fact, that it is proposed to adopt it as the report for the joint session after it has had the approval of the A.P.I. officials.

The work was turned over to Mr. Logan and Doctor Scott at the close of the joint meeting and they will have charge of the details from this time until their formal reports are presented. Doctor Scott has been retained as an American Petroleum Institute research associate and will conduct this work in connection with the United States Bureau of Standards.

Suggestions by A.P.I. Committee

Suggestions prepared by the A.P.I. committee on corrosion of oil field equipment and presented at the Bureau of Standards joint meeting held in Tulsa March 18 follow:

1. The committee believes the soil corrosion work of the Bureau of Standards is a valuable undertaking and desires to aid in extending it.

2. The committee's investigations indicate that although the problem of maintaining underground pipe lines against corrosion involves millions of dollars of expense every year, there has not been given to it the amount of research attention it deserves.

3. The committee is, therefore, in sympathy with plans which will stimulate research by the industries involved, and which will tend to "inject engineering principles into the art of protecting buried pipe lines against corrosion."

4. It is desirable that every available coating of probable value be included in the program. This will tend to enlist the research interest of all manufacturers, and will provide an opportunity to observe and analyze the capabilities of the maximum number of materials. The main object, it should be borne in mind, is to analyze the character of various types and classes of materials in relation to various soil conditions so as to make clear outstanding design principles.

5. So that the tests may be participated in by all manufacturers, the coatings may best be applied to 3-inch pipe nipples 2 feet long.

6. It is realized that a testing program, aside from serving the general purposes above listed, can at best bring out clearly and indisputably only a few main points of value. The desired points of special interest must be decided upon at the outset.

7. A major comparison to be kept in mind is that between the action of bare pipe and coated pipe. Data on this point for all coatings are necessary in solving problems in economics. The question at issue is not whether one type of coating will last longer than another, but whether one coating will bring a higher return on the investment than another for any given condition.

8. Miscellaneous comparisons which are of interest and which we believe should be provided for if possible, are as follows:

(a) The field of service for coal tar in relation to asphalt.
(b) Asbestos fabrics in relation to rag felts.
(c) Uncoated fabrics versus coated fabrics.
(d) Single ply versus double and triple wrap fabric applications.
(e) Loose versus bonded fabrics.
(f) Etc.

Agree With Doctor Scott's Plans

9. In general, the committee agrees with Doctor Scott's proposed layout for the tests. The three following features appear particularly desirable:

1. That a range of soil conditions be selected which will vary from very severe to mild.

2. That the coating specimens exposed

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Oklahoma Curtailment Continued

Operators Agree on Plan to Keep Production Down to Requirements for the Next Three Months

By James McIntyre

The curtailment of excess production in Oklahoma for the second quarter of the year under the direction of the Oklahoma Corporation Commission, was agreed upon at a series of meetings of operators in the areas which have been under proration all year, which meetings followed a meeting of the general committee on proration of the Mid-Continent Oil and Gas Association, held Friday, March 14.

At the meeting on Friday a general plan of curtailment was agreed upon affecting Oklahoma City, the Greater Seminole area and Logan County and the Allen Pool and the recommendations of the committee were passed on to the operators themselves. The report of the general committee with some modifications was adopted, first by the East Earlsboro operators; then the Oklahoma City operators, and lastly by the operators in the other prorated districts.

Under the modified plan the Oklahoma City Field, which is now curtailed to 12½ per cent of its potential, will be permitted to produce up to 25 per cent of its potential, if there is a sufficient demand for the crude and subject also to the pipe line and tank car capacity for handling the oil. The East Earlsboro Pool will continue to produce not more than 33⅓ of its potential, but with a minimum of allowable production of 35,000 bbls. a day. South Earlsboro will be placed on a 33⅓ per cent basis in April, but as it is a new pool and its potentiality is yet unknown, its treatment as to May and June will be taken up later. All the Greater Seminole area, and Allen and Logan County, which are now permitted to produce 70 per cent of their potential, will continue at that figure. Konawa, which had been under a 75 per cent curtailment was placed on a 30 per cent basis, along with the other Seminole pools, but with a maximum of 14,000 bbls. a day of allowable production.

The next step will be a petition to the Oklahoma Corporation Commission for an order to carry out the plan.

East Earlsboro Approves

East Earlsboro operators met Monday afternoon to consider the proration plan for the next three months. The recommendation of the proration committee that East Earlsboro and South Earlsboro be regarded as one pool for proration purposes and that their curtailment be continued at 66⅔ per cent, came in for much objection on the part of some operators in both fields. South Earlsboro operators expressed the opinion that in as much as there was only one producing well in the field it was impossible to project the potential production of the area three months. It was argued that the pool might be a disappointment or, on the other hand, it might be a very large potential producer. It was felt that it should be treated as a unit and that a curtailment figure covering only 30 days, instead of 90 days, should be applied to it. This was agreed to at the end with the understanding that if the performance of the field warranted it the umpire and the proration committee could amend the curtailment percentage subject to the approval of the operators in the pool and the State Corporation Commission. In the case of the East Earlsboro Pool, complaint was made that the pool was on the decline; that it was nearly drilled up and that a three-months curtailment on a 66⅔ per cent basis would work a hardship on the operators in the pool. It was agreed finally that the 66⅔ per cent figure be maintained with the understanding that if it brought the production of the pool below 35,000 bbls. a day it be amended so that a minimum production of 35,000 bbls. a day be permitted during the remainder of the proration period.

Oklahoma City Meeting

At the meeting of the Oklahoma City operators on Tuesday, there was no objection offered to the curtailment percentages fixed by the general committee, but the Sinclair Oil & Gas Co. protested against the 65-day shut-down plan on newly completed wells on what is now the edge of the pool. It is the rule in the Oklahoma City Field that when a well is completed it shall be permitted a 24-hour production test and then be shut down for 65 days, minus 7 days allowed for cement to set. The Sinclair Oil & Gas Co.'s contention was that on wells started after April 1 a time allowance should be made because the field is being drained. For example, a well starting on April 10 should not be subjected to a 65-day shutdown, but should be permitted to go on production at the end of 55 days. As this would place wells starting on April 1 and on June 5 on the same basis, both being permitted to go on production on the same day, provided the same number of days are consumed in drilling them, none of the other operators could see the justice of it, and the amendment to the rule was voted down. Judge Chandler, representing the Sinclair Oil & Gas Co., while admitting his company was in agreement on the curtailment plan, voted against it because of objection to the plan covering drilling wells. All other companies adopted the general committee's recommendations.

The operators in all the prorated districts outside of Oklahoma City and East and South Earlsboro met Tuesday afternoon and quickly and unanimously adopted the recommendations of the general committee putting them on a 30 per cent curtailment basis for the ensuing quarter.

Following the adoption of the program, Chairman C. C. Herndon called upon Edwin B. Reeser, president of the

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Discuss Gasoline Specifications

Explanation of Proposed Changes in Natural Gasoline Grades Emphasizes Changes in Motor Fuels

By C. O. Willson

SHREVEPORT, La., Mar. 13.—Trends in motor fuel specifications featured the discussions of the manufacturing committee of the Western Petroleum Refiners Association which closed a two-day meeting here yesterday following the annual meeting of executives. While papers on other subjects were followed by discussion it was apparent that the main interest centered in the present specifications of motor fuels and their probable future trend.

The discussions were precipitated by papers presented by S. S. Smith, Shell Petroleum Corp., on Tuesday and Emby Kaye of the Skelly Oil Co. on Wednesday. The paper by Mr. Kaye was published in the March 13 issue of The Oil and Gas Journal. Mr. Smith's paper appears in this issue.

Mr. Smith, who is general superintendent of the natural gasoline plant operations of the Shell corporation, is chairman of the Specification Committee of the Natural Gasoline Association of America which after more than a year of active investigation and study is about ready to offer new tentative specifications for several grades of natural gasoline. Representing the association in his official capacity Mr. Smith reviewed part of the work of the committee which as yet is not in final agreement regarding the new specifications. Mr. Kaye, who is general superintendent of the natural gasoline department of the Skelly Oil Co., on Wednesday followed with a paper on "Handling and Shipping Natural Gasoline." Mr. Kaye's paper dwelt largely on the significance of specifications in relation to handling losses and brought a continuance of the discussion which followed Mr. Smith's paper.

While the papers were primarily concerned with the natural gasoline situations, the discussion spread to the broad field of specifications for all motor fuels reflecting the changing conceptions of what constitutes a satisfactory motor fuel from the consuming end, a development of which all refinery operators have been aware for some time but which has rarely been the subject of general discussion.

The stress being laid on the antiknock properties of motor fuel and the change in distillation range with the view of securing greater volatility, reflects this situation. The U. S. Motor grade of gasoline has largely lost its position as being the representative domestic grade for automobiles and other motor vehicles. Rather, as was pointed out at the meeting, it has become something which the average refiner in response to the demand of the sales department, endeavors to improve with a lower distillation range from the initial to the endpoint with emphasis placed on the 10 per cent and intermediate points. This is all a part of what has been termed a "competition of quality," for which the advent of new type motors and the consumer acceptance of Ethyl Gasoline and other premium grades of motor fuels and motor oils, has been held responsible.

Differences of Opinion

The discussion of the manufacturers' meeting developed some differences of opinions among the refinery and natural gasoline representatives resulting finally in an invitation to the refiners to present their views at the annual meeting of the Natural Gasoline Association of America which will be held in Tulsa May 20, 21 and 22.

The natural gasoline association plans to have its new specifications in final form at the time of the May meeting. It was also stated that new blending tables and charts would be available showing the refiners how to blend natural gasolines with their products to secure the finished motor fuels of desired specifications.

In the proposed changes in natural gasoline grades it is apparent that the natural gasoline operators hope to reflect the additional information which has been obtained over the past few years regarding the hydrocarbon constituency of the gasolines and their relative value in blending with refinery gasolines to secure finished motor fuels. The Natural Gasoline Association over the past three years under the direction of Dr. G. G. Brown of the University of Michigan, has carried on a co-operative research program which has been largely devoted to the utilization of natural gasoline as blending material. This program supplemented by the work of individual manufacturers has resulted in the accumulation of fundamental data which from time to time have been made available to the industry generally.

In general this work has shown that past practices in refinery blending have often failed to accomplish the result desired due to the fact the present grades of natural gasoline do not allow the manufacturer and refiner to properly discriminate as regards specifications needed. Furthermore Doctor Brown's experiment has shown that when properly blended greater quantities of natural gasoline can be used, securing motor fuels possessing all the characteristics desired by the consumer.

On the other hand most refiners take the position that they want to "use as little natural gasoline as possible," blending largely for gravity and the 10 per cent point. The opposing views are further complicated by the fact that with modern cracking processes many refiners have the equipment at their refineries with which to secure the desired volatility. Many operators are finding it necessary to stabilize their cracked gasolines to assure proper performance in motor vehicles.

Position of Manufacturer

The two papers and the discussions of the manufacturers fairly well defined the position of the natural gasoline industry in any controversy which may arise. As regards antiknock properties, data were presented showing that the average natural gasoline grade today ranks higher than most of the refinery gasolines. This means that when a refiner blends natural gasoline he generally adds to the antiknock properties of his motor fuel. Due to the fact that the several hydrocarbon series which go to make up a finished natural gasoline, do not have the same knock rating, the refiner to a limited extent can control this feature of his blend by buying the grades with the highest knock rating.

In regard to volatility, the point was stressed that volatility in a motor fuel

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Geologists Arrive for Convention

Interest Centers on Election of President for Next Year, With Sidney Powers and David Donoghue Prominently Mentioned

NEW ORLEANS, La., Mar. 18.—The vanguard of the American Association of Petroleum Geologists, which is to hold its fifteenth annual meeting here this week, has already arrived and incoming trains this afternoon and tonight will bring hundreds of geologists and their wives from throughout the United States. The early arrivals at the Roosevelt Hotel, headquarters of the association for the week, included the members of the committee on arrangements and the officers of the national organization, J. Y. Snyder, Shreveport, La., president; Fred H. Kay, New York, first vice president; A. R. Dennison, Fort Worth, Tex., second vice president; F. H. Lahee, Dallas, Tex., third vice president, and R. S. McFarland, Tulsa, past president.

Two preconvention meetings were held in the hotel today, those of the constitutional committee, Max W. Ball, chairman, and the executive committee, of which Mr. Snyder as president of the association is chairman. Meetings will be held tomorrow by the research committee, Alex W. McCoy, chairman, and the general business committee, Wallace E. Pratt, chairman. The convention itself will open Thursday forenoon and end Saturday afternoon.

Preparations are being made to handle scores of visitors tomorrow on the special all-day sightseeing trip through the "Evangeline" country, where the quaint homes, stores and customs of old Creole days still persist, and the salt domes of the Louisiana Gulf Coast.

Unusual Interest in Election

This year's meeting of the largest organized body of geologists in the world, with its membership of almost 2,500, is marked by unusual interest in the annual election of officers, which will take place on Friday, and by the record-breaking number of technical papers to be presented. Divisional meetings, held simultaneously in different rooms of the hotel, will make it possible to present almost 100 papers prepared by leaders in various branches of petroleum geology. The result of the election of officers will not be announced until Saturday.

Among those prominently mentioned for the office of president of the association for the ensuing year interest centers especially around Sidney Powers of Tulsa, consulting geologist for the Amerada Petroleum Corp., and David Donoghue of Fort Worth, geologist for the Tidal Oil Co. Delegates already here express the belief that one of these two men probably will be chosen for the highest office in the organization.

Sidney Powers

Mr. Powers, who is 40 years old, received his B.A. degree from Williams College in 1911 and his S.M. from the Massachusetts Institute of Technology two years later. In 1915 the degrees M.A. and Ph.D. were awarded by Harvard University. Mr. Donoghue began his professional career as a division geologist for the Producers Oil Co. (The Texas Company) in Shreveport, La., in 1916, serving in this capacity for two years. He was assistant geologist in the United States Geological Survey in 1917 and 1918, following which he entered the service of the Amerada Petroleum Corp. He was chief geologist for this company from 1919 to 1926 and since the latter year he has been consulting geologist. Mr. Powers is the author of various publications in the bulletin of the Geological Society of America, the Journal of Geology, etc., on volcanoes, structural geology and structure of oil fields. Besides the American Association of Petroleum Geologists he is a member of the Society of Economic Geologists, Institution of Petroleum Technologists, American Institute of Mining and Metallurgical Engineers and a fellow of the Geological Society of America.

Mr. Donoghue Had Wide Experience

Mr. Donoghue, born in San Antonio,

David Donoghue

Tex., in 1891, attended St. Mary's College and the University of Texas after his high school course and then in 1913 he went into the oil field as a laborer to get a practical knowledge of oil production. The next year he became an oil scout for the Gulf Production Co.

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Deep Sand Development in Barbers Hill

Probable Several Other Sands Will Be Productive When Found Structurally High, Close to the Dome. Long Production Expected

By P. C. Murphy[1] and Sidney A. Judson[2]*

Oligocene sands have yielded wells of the gusher type from a 5,100-foot sand horizon at Barbers Hill Dome for the past 15 months, after years of former unprofitable exploration of shallower sands. A 10,000-bbl. well from 6,416 feet on an undeveloped flank of the dome in a deeper horizon in probable Oligocene formation indicates a new stratum, richer than those already found. Seventy-one deep producing wells have been drilled during this recent period. The production for 1929 totaled 4,487,000 bbls.

An unusual condition is found on the northeast flank of the dome, where several hundred feet of cap rock and salt between the depths of 1,500 and 2,500 feet jut out from the main intrusive mass. Many wells have drilled through this and have found the sedimentary beds below including oil sands, practically undisturbed by this overhanging mass.

The topographic expression of the dome consists of a hill, oval in shape, rising 45 feet out of the surrounding coastal plain.

The early history of this field, up to August, 1924, has been fully described by George Bevier. Up to that time 120 tests had been drilled, of which 26 were producers. Ten of these were shallow tests for sulphur. Development, with possibly a single exception, had not penetrated deeper than the Miocene formation, in which a comparatively small production had been obtained on the southwest flank, amounting to a total of only 780,524 bbls.

On account of these discouraging results, there was no further development of the dome until 1926 when Mills Bennett Production Co. drilled five additional wells on the southwest flank, adjoining previous producing wells. At practically the same time, Mills Bennett Production Co. and Humphreys Corp., drilling jointly, obtained production on the northwest flank of the dome in the upper Miocene or lower Pliocene sands. The discovery well, their No. 1 A. E. Barber had an initial flow of 500 bbls. of 32 degrees gravity oil.

A total of 13 wells were drilled in the immediate area to this horizon, 6 of which were producers. The seeming lenticularity of the sand retarded further development. Two tests were carried below 3,200 feet, but these developed no deeper production, although shows of oil were obtained.

A few months later, in November, 1926, Mills Bennett Production Co. and Humphreys Corp., again drilling jointly, found a better Miocene sand on the northeast flank of the dome. The discovery well, No. 2-B Kirby, flowed 800 bbls. of 25 degrees gravity oil from sands from 4,091-4,174 feet. Two additional producers, Nos. 3-B and 4-B Kirby, were obtained offsetting this well. The Humphreys Corp.'s No. 5-B Kirby was drilled 150 feet closer to the dome in an effort to hit these sands higher. This well struck cap rock from 2,193-2,223 feet and lost returns in a cavity just below it. This well, however, was drilled deeper and went back into sedimentary beds and continued through a section of alternating gumbo, shale and sands to a depth of 4,950 feet, where the hole was junked. This well reached the Discorbis zone of the Oligocene at 4,804 feet. This was the first well at the dome to find thick sedimentary beds under cap rock. Mills Bennett Production Co.'s No. 1 Kirby, 500 feet farther to the south along the dome, missed the 4,100-foot Miocene sand horizon and tested salt water in a partially saturated sand from 4,953-95 feet in the Discorbis zone of the Oligocene. This well was carried to the Heterostegina zone of the Oligocene and completed at a total depth of 5,468 feet, making a 200-bbl. producer. The well, however, flowed pipe line oil for a few hours at the rate of 1,200 bbls. per day before water broke in from an upper sand.

This was the discovery well of the prolific horizon now producing on the east and south flanks. This led to the drilling of Mills Bennett Production Co.'s No. 1 Smith, 325 feet south, which was completed October 9, 1928, for an initial flow of 4,000 bbls. of 27 gravity oil from a depth of 5,240 feet to 5,278 feet and which definitely established a sand of gusher type on this dome. The area immediately adjoining this to the south is divided into small tracts and was drilled up without delay. Thirty-six wells were drilled in an area 1,600 feet long and 200 feet to 300 feet wide. Most of these were completed as good flowing wells.

In the meantime, on January 29, 1929, Yount Lee Oil Co. completed its Chambers County Agricultural Association No. 1 for an initial flow of 4,700 bbls. from sands from 5,107-5,318 feet. This well is on the south flank of the dome and is producing from the same zone as the wells on the east flank. A narrow line of flowing wells along the dome was obtained in this area. The Yount Lee Chambers County Agricultural Association No. 4, which was completed as a dry hole at a total depth of 8,148 feet, is the deepest well ever drilled in the Gulf Coast.

An area midway between these two groups of wells was opened by the Republic Production Co.'s No. 1 Kirby, completed July 27, 1929, for 3,420 bbls. initial production from a total depth of 5,194 feet from the same horizon of the Oligocene as the two earlier areas mentioned. Encouraged by the success obtained in the two former deep sand areas, the various operators quickly started a number of wells in the vicinity immediately adjoining this well. Most of these were completed as flowing producers, although the size of the first producing wells was somewhat more erratic than in the two other areas. Up to the present time 71 producing wells and 6 dry holes have been obtained in the deep sands on these flanks of the dome.

The Humphreys Corp.'s No. 8-A Kirby, located on the northwest flank close to several small shallow wells and dry holes, and over 2 miles around the dome from the nearest deep production, was brought in January 4, 1930, for an initial flow of 10,262 bbls. per day of 34 gravity oil. Production comes from sand between 6,397 feet and 6,416 feet, which is probably in the non-fossil zone of the lower Oligocene although positive paleontological evidence has not been found. It is the deepest producer in the Gulf Coast of Texas, although two deeper producers have been obtained in the Jennings Salt Dome.

Sub-subface Geology

The intrusion of the salt plug through the surrounding formations is shown on the northwest southeast cross section, with its relation to the uplifts at Humble, Esperson and Lost Lake Domes.

Humble and Barbers Hill are alike in that the salt in these domes has pushed its way up close to the surface through the Miocene and Oligocene, and the oil in these two formations has collected in the sands against the side of these domes. Humble, in contrast with Barbers Hill, has produced much caprock oil. On the other hand, the intrusive mass at Lost Lake and Esperson is much farther below the surface, and the oil produced up to the present has been found only in the formations above the dome. The flanks of these two domes have not yet been explored sufficiently to determine whether oil is present there.

The salt plug at Barbers Hill is oval in outline and is covered with thick successive layers of anhydrite, gypsum and secondary limestone, typical of the average coastal salt dome. The sides of the intrusive mass are apparently either approximately vertical, or with a slight inverted cone effect below 3,000 feet, except on the southwest flank where salt was found in the Mills Bennett Production Co.'s No. 4 Japhet, at 4,060 feet. This is the only flank well on the dome that has reached salt below 4,000 feet. The opposite flank of the dome indicates that there the shallow cap and salt protrude out beyond the deeper salt body and form what is locally known as an "overhang." Since only one well has reached salt below 4,000 feet, sufficient data is lacking to determine whether the deeper salt is practically vertical or whether a considerable overhang exists.

This dome is one of the few in which deep oil sands have been regularly found beneath protruding cap or salt. At least 16 wells on the east and north flanks have drilled through overhanging caprock and 4 wells have drilled through overhanging salt under the caprock. All of these wells went back into sedimentary formations immediately below the overhang and the formations below were not noticeably affected by the overhanging cap and salt. The Humphreys Corp.'s No. 2 Ilfrey, drilled through 878 feet of salt between 1,531 feet and 2,409 feet and is now drilling in sedimentary formations at 4,281 feet. These facts lead to the conclusion that on this dome at least, wells which reach salt near a known steep flank should penetrate it at least 1,000 feet before being abandoned. It is believed that this practice could well be extended to other domes with steep flanks, for few domes of this type have had the edges of the caprock and salt sufficiently explored to determine whether or not an overhang exists.

The character of the anhydrite, gypsum and limestone caprock is described by Bevier. The especially thick caprock of the dome and the nearly vertical flanks allow accurate interpretation of torsion balance surveys in locating the position of the outside limits of the intrusion, although the amount of over-

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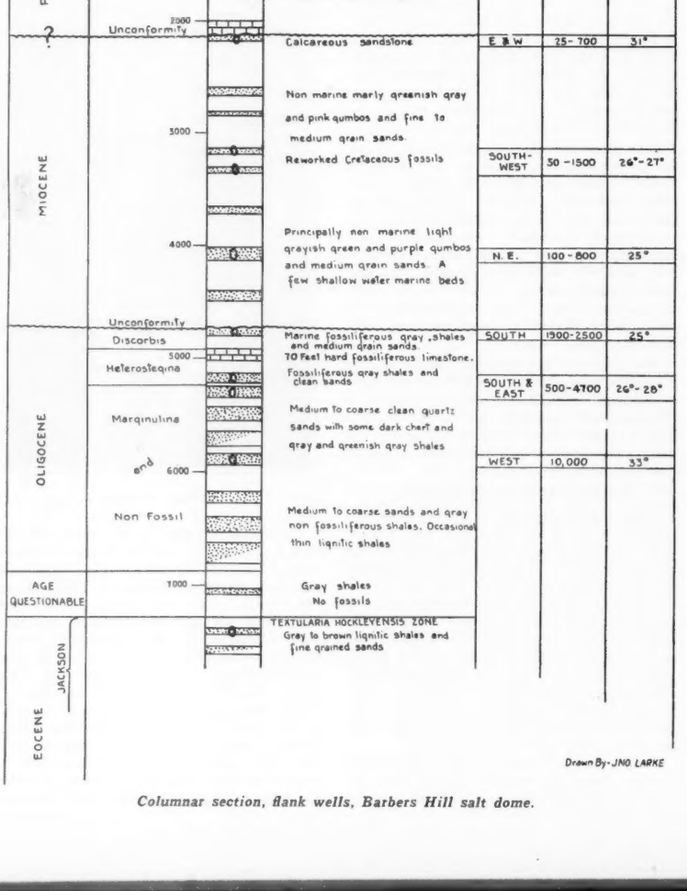

Columnar section, flank wells, Barbers Hill salt dome.

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Non-Metallic Protective Linings

Used Against Corrosion in Larger Elements of Refining Equipment and Particularly for Cracking Equipment

By Jacque C. Morrell
Research Laboratories, Universal Oil Products Co.*

A study of the problem and possible methods of protection against corrosion especially in the larger elements of refining equipment and particularly for cracking equipment such as stills, reaction chambers and fractionating equipment would lead one to the conclusion that the most satisfactory solution is some form of nonmetallic protective lining. The term nonmetallic need not necessarily exclude metals so long as the metal is not applied in a continuous sheet, for example, finely divided metals may be incorporated with advantage in the mixture.

Nonmetallic Linings

Nonmetallic linings may generally be composed of mixtures of clay, quartz sand and of ceramic materials used in the manufacture of mineral refractory and heat resisting elements, porcelain, terra cotta, brick, pottery, oxides of metals and in general materials of a mineral character, with mineral binders such as sodium silicate; or materials consisting mainly of a concrete made from cement mixed with ceramic materials such as the so-called ganister or crushed firebrick or quartz sand. The binder in the first group is sodium silicate or "water glass" and is cement in the second group. For purposes of the present classification the first group will be referred to as nonmetallic protective lining with sodium silicate binder and the second group as ganister lining.

A satisfactory and successful protective coating of such mixtures for cracking vessels should have the following properties:

1. Resistance to acidic substances and gases, such as hydrogen chloride and hydrogen sulphide.
2. Permanency under rapid heating or cooling; i.e., have a coefficient of expansion, crushing and tensile strength, and elasticity of properly related values.
3. Strong adhesion to the steel shell, chamber, or other surface to be protected and hardness to withstand hammering and cleaning of the inside surface of the chamber.
4. Ease of removal of adhering coke, pitch, and other materials which accumulate during the processing of the oil.
5. The coating must not crack during the initial drying operation, and must be free from blisters in the subsequent curing operation in the case of the silicate binder lining.

It can readiiy be appreciated that the development of a lining to give the required properties, some of which are enumerated above, demands a large number of statistical experiments to determine the best materials, proportions, grading or size of material, conditions of curing, etc. This work is still in progress.

Nonmetallic Lining With Sodium Silicate Binder[2]

Sandblasting

The chamber to be lined is cleaned thoroughly and sandblasted to remove all coke and oil. It is imperative that all oil be removed from the chamber wall in order to insure successful results with the lining. If the chamber has oil, pitch or coke on the walls, they should be dried with a suitable gas burner before sandblasting. The temperature of the chamber is quickly raised to about 900° F. and kept at this temperature until the oil has been vaporized, the pitch carbonized, and the coke dried or loosened. A good draft should be maintained during the early part of the drying operation in order to avoid explosion of gases that may accumulate. Care should be taken that all lines into the chamber are disconnected and the opening blocked off before lighting the burner, thus preventing oil or gas vapors entering the chamber, which might become ignited, causing explosion and serious injury to workmen.

Any efficient sandblasting equipment is suitable and a water trap to insure dry air is inserted in the air line to the sandblasting apparatus.

The sand for sandblasting should be coarse and sharp, and it has been found that heating it increases the efficiency of the operation over 25 per cent. A white silica foundry sand has been found most suitable. In operating the sandblasting machine men should be fitted with close-fitting goggles and a respirator; this also holds for the application of the protective coating.

Preparation of Mixtures

The materials comprising a batch of lining material, a batch of brushing solution, and the amounts necessary for lining various portions of 10-foot diameter reaction chambers, are listed below.

It has been found convenient to use some of the standard furnace cements as a component of the mixture. These cements, generally speaking, are composed of varying proportions of clay such as flint or plastic clay, crushed fire-brick, some so-called ganister generally made up of quartzite, and small proportions of other minerals together with some sodium silicate as a binder. These prepared furnace cements are mixed in predetermined proportions with additional quantities of high-grade silica sand, sodium silicate, water, and small quantities of asbestos.

The mixture is prepared as follows: The furnace cements are first mixed thoroughly in a mortar box, using a hoe. The sand and asbestos are thoroughly mixed separate from the furnace cements, care being taken to make certain that all lumps in the asbestos are broken. The sand must be dry; otherwise it will form lumps with the asbestos. The sand and asbestos mixture is then incorporated with the cements and the water glass or technical sodium silicate added, and the whole is thoroughly mixed in the

(Continued on Page 110)

ONE BATCH OF LINING MIXTURE

Furnace cement	60 lbs.
White silica foundry sand (90 per cent to pass through 50-mesh screen)	30 lbs.
Asbestos, short fiber	1½ lbs.
Water glass	1 gal.
(Technical solution sodium silicate 40-43° Be.; silica to sodium oxide ratio 3½ to 1)	
Water, approximately	1¼ pt.
(Enough to give proper consistency)	

ONE BATCH OF BRUSHING MIXTURE

Furnace cement	6 lbs.
Water glass (same as used above)	1 gal.
Water (enough to thin to proper consistency)	3 pts.

MATERIAL FOR VARIOUS PORTIONS OF 10-FOOT DIAMETER CHAMBERS
(Includes amount necessary for painting solution)

Batches	Area lined feet	No. lbs. furnace cement	No. lbs. sand	No. lbs. asbestos	No. gals. water glass
1	Top head	66	30	1½	2
2	3½ (side)	126	60	3	3
3	7 (side)	186	90	4½	4
4	10½ (side)	252	120	6	6
5	14 (side)	312	150	7½	7
6	17½ (side)	372	180	9	8
7	21 (side)	438	210	10½	10
8	24½ (side)	498	240	12	11
9	28 (side)	558	270	13½	12
10	31½ (side)	624	300	15	14
11	35 (side)	684	330	16½	15
12	38½ (side)	744	360	18	16
13	40 (side)	810	390	19½	18
14	Entire 10x10 Cham.	870	420	21	19

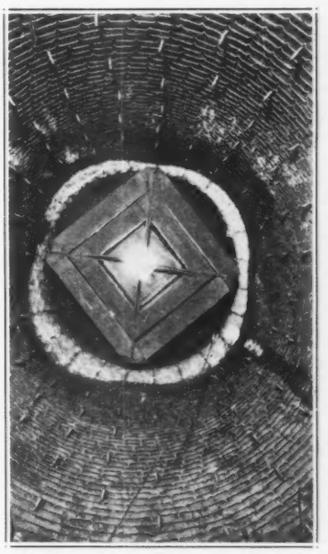

Figure 1—Looking upward towards the top dowels or lugs supporting the diamond mesh expanded metal installed.

*Before Western Petroleum Refiners Association, Shreveport, La., March, 1930.

[2]Morrell & Faragher, Chem. & Met. Vol. 36, No. 10, page 596. The nonmetallic lining with silicate binder was originated and developed by the Universal Oil Products Co.

CALIFORNIA OIL EQUIPMENT SHOW GETS OFF TO ENCOURAGING START

By L. P. Stockman

LOS ANGELES, Calif., Mar. 18.—The California Oil Equipment and Engineering Exposition got off to an excellent start this week and with the success of the first annual exposition definitely assured preparations are being made to make next year's show still better. Exhibitors are well pleased and the interest shown by visitors is especially encouraging. Although rain fell on Sunday and Monday, the attendance has been good and increasing from day to day. During the later part of the exposition attendance will be greatly stimulated by group meetings of the American Petroleum Institute and other organizations affiliated with the oil industry, so that it is predicted that final figures may show an attendance of at least 15,000.

One of the most interesting features in connection with the show being held in Los Angeles is the large nightly attendance, indicating that operators who are unable to get away from the field during the day because of curtailment work are sufficiently interested to attend on their own time at night.

Congratulations From Mr. Skelly

Each exhibitor at the Los Angeles show received the following letter from W. G. Skelly, president of the Skelly Oil Co., Tulsa, and also president of the International Petroleum Exposition:

"As an exhibitor and an important part of the California Oil Exposition, I extend heartiest good wishes and hope for the success of your display and the exposition itself.

"William McKinley once said, 'Expositions are the timekeepers of progress,' and your company by its progressiveness in supporting an exposition of this kind shows it as an alert, progressive, up-to-date institution. Expositions are an important part of our present-day business life. An exhibit, in conjunction with the regular forms of advertising, offers an opportunity of displaying materials and processes in a much more practical and expressive way than the printed word alone, and then the combined exhibits forming the exposition itself offer to any industry an educational center where men engaged in the everyday practices of that industry may see for themselves the best and latest improved equipment by which any particular job may be accomplished.

"California is to be congratulated on this oil exposition and California has contributed greatly to the wealth and welfare of this nation in many other ways, but the greatest of these contributions has been its development in all branches of the oil industry.

Proud of Accomplishments

"We here in the Mid-Continent Field are justly proud, too, of the many accomplishments and activities continually going on in the oil industry, and of these not the least is the International Petroleum Exposition and Congress, held annually in Tulsa.

"This exposition proudly reviews its seven years of accomplishment and prog-

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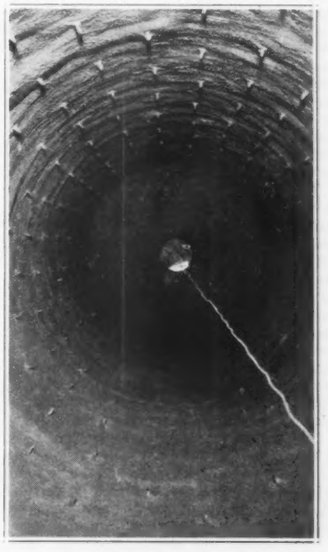


Figure 2—View of the finished ganister manhole head of the chamber with the liner.

Mud a Problem in Ventura Ave. Field

Wells Make Little Mud in Drilling Because of Sandy Nature of Formations and Absence of Suitable Shale Bodies

By F. W. Hertel and E. W. Edson*

In some fields the problem of mud fluid is quite simple and easy of solution. However, the acquisition and disposal of good drilling mud in the Ventura Avenue Field is not the least of the problems that confront the operator. In fact, mud fluid in that field is a very important factor in the drilling of the wells. Although many of the factors affecting mud in this field are not present in all fields, yet even where the mud fluid causes no apparent problem, probably some of the points brought out in this paper could be used to economic advantage. In fields where caving and squeezing formations, and high gas pressures are present, as in the Ventura Avenue Field, the application of the methods here outlined should be of great assistance in drilling wells.

Because of the very sandy nature of the formations and the lack of suitable shale bodies in the strata drilled through in this field, the wells make practically no mud during drilling. Drilling mud that will carry the drill cuttings to the surface and that will also "wall up" the drill hole and so prevent the sandy formations from caving must, therefore, be supplied.

The clay used to make the mud fluid is obtained from a shale stratum in the Upper Pico (Pliocene) formation found about a mile on either side of the field.

Mixing and Handling of Mud Fluid

Since high gas pressures and caving formations were first encountered in the Ventura Avenue Field and mud fluid became necessary to combat them, the mixing of this mud fluid has gone through a process of evolution.

At first the clay was mined and hauled to the derrick where it was shoveled into the well and the churning action of the bit mixed it into a mud in the hole. The next move was the construction of a machine to mix the clay to a mud fluid and to pump this fluid into the well. These mixing plants were constructed at central points on the leases and the mud was distributed from them to the wells in a pipe line system. Flumes were constructed from the wells to the settling basins to handle the waste mud from the wells. After this waste mud had been rid of sand, oil and gas it was pumped back to the mixers for reconditioning. This salvage of used mud greatly lessened the amount of dry clay necessary to keep up the mud supply and also lessened the expense of constructing additional sumps and settling basins to hold the waste mud.

The hauling of the mud from the mine to the mixer and the upkeep on several mixers and pumps were found to be expensive, and the decision was finally reached to construct a central mud mixing plant at the source of the clay and pump the mixed mud from there to the drilling wells. Therefore, the two major operators in the field (Shell Oil Co. and Associated Oil Co.) now each has its own mud-mixing plant at the source of supply. The mud is mined, as before, with steam shovels, as it is too hard to mine hydraulically or with scrapers.

Two Plants Similar in Design

These two plants are similar in design, but vary in detail, one being steam driven and the other electrically driven. The best points of each plant will be described.

The plants are constructed at the source of the clay supply on several terraces on the side of a hill.

The clay is hauled a short distance in dump trucks and dumped into a large hopper that leads down to the mud mixer. The clay runs from the hopper to the crusher, which crushes the mud into small clods about the size of a walnut. One of the plants has no crusher so that the clay is there crushed in the mixer, thus increasing wear and tear on the mixer and reducing the plant capacity.

The mixers at one of these plants are made from old boilers, and a 6-inch diameter shaft is used. That part of the shaft upon which the paddles are mounted is square, with a groove planned to receive each paddle. The paddles are fitted to the shaft and the two halves of the paddle are bolted together on each side of the shaft, and then spot welded together. The paddles are so constructed that the thrust set up by one paddle is counteracted by the thrust of the adjacent paddle. Stuffing boxes of special design are used and fitted to the ends of the mixer. The ends of the square shaft are turned down 6 inches in diameter and the shaft is supported by babbitt bearings. The mixers and bearings are mounted on reinforced concrete piers.

The clay is hydraulicked into the mixer with water or waste mud that has been previously pumped from catch basins to a storage tank.

The mud from the mixer flows through settling tanks and then to the storage tanks by gravity. The settling tanks catch the particles of sand, and only the best mud is run to the storage tank.

Mud as Heavy as Pumps Can Handle

The mud is mixed so that the mud-fluid has a weight of about 81 to 85 pounds per cubic foot (specific gravity 1.30 to 1.36). The mud is mixed to this weight, as this is the heaviest that can be handled efficiently by the pumps. If necessary this mud is thinned at the well to the weight desired for the operations going on at the time. In special cases mud fluid is mixed heavier than 85 pounds per cubic foot—if, for instance, it is desired for a well that is gassing. This mud is secured by rerunning the ordinary mud through the plant and securing mud that weighs 90 pounds per cubic foot (specific gravity 1.44).

The mud pipe line system is routed over the various leases to each drilling well. A 500-bbl. mud tank is placed at each drilling well for storage purposes. Whenever it is necessary to change the mud that is being used in drilling a well, fresh mud is supplied from this tank, which is then filled from the main mud system. When the mud has become full of sand, and, possibly, oil and gas, it is dumped into a flume and carried to one of the settling basins.

During the travel of the waste mud through the flumes to the settling basins most of the gas escapes from it. However, if any gas remains in the mud, it will rise to the top during the time the sand is settling. The oil collects on top during this time and is either burned or drained off from time to time. Pumps are mounted on scows and are floated in these large settling basins. The discharge line and steam line are run from the bank of the settling basin to the scow on floats. Swings are constructed in the pipe line at the bank so that the scow can be moved upon the mud without setting up undue stresses in the lines.

After most of the sand has settled out of the mud in the basin, the mud is pumped back to the central plant to be reused.

As this description indicates, the mud goes through a definite cycle. First, the socalled waste mud from the settling basin is pumped to the central mud-mixing plant and thickened by adding fresh clay from the shute. Secondly, it is pumped to the well, where it is used. Thirdly, it is discharged from the well to the settling basin. This cycle may be continued until the sand content of the settling basin mud becomes so great that it is no longer serviceable.

Mud fluid used in the Ventura Avenue Field for drilling purposes is generally considerably heavier than in most other fields. The sandy strata drilled through must be kept well mudded or the hole will cave. For this reason, mud weighing less than 75 pounds per cubic foot (specific gravity 1.20) cannot be used, as it will not properly "wall up" these sandy formations.

Revolving sand screens were used on two wells some years ago and, because of the necessity of adding water to keep the screen clean, the weight of the mud fluid could not be kept above 70 pounds per cubic foot (specific gravity 1.12) and serious caving in both holes took place.

Mud fluid weighing from 75 to 81 pounds per cubic foot (specific gravity 1.20 to 1.30) has been found to be the best weight for drilling purposes in this field, the actual weight depending on how sandy are the formations through which drilling is progressing. Lighter mud, as explained above, cannot be used in this field, although elsewhere mud weighing even less than 70 pounds per cubic foot might be used with good results.

Mud weighing more than 81 pounds per cubic foot will retard speed of drilling and prevent cuttings from dropping out of the settling ditch.

Pump Pressure Required

This mud requires pump pressures varying from 100 pounds, with 8-inch drill pipe at shallow depths, to 1,400 pounds, with 2½-inch drill pipe below 7,000 feet to circulate it.

Because of the necessity of using heavier mud to drill the wells, this mud does not drop all its cuttings of sand and shale particles in the settling ditches, and consequently the mud being used contains a high percentage of sand. Besides causing considerable wear on the pumps, sandy mud often causes the drill pipe to stick and, invariably, when a twist-off occurs it cannot be pulled from the hole with the overshot, as the sand has settled around it and it has become stuck. In some instances, frozen drill pipe could be loosened by circulating or spotting oil if circulation could be secured around the fish. However, on many occasions expensive washing over and cutting jobs and, in some cases, even sidetracking jobs are necessary.

Since the completion of the central mud-mixing plant, which insured a greater supply of new or reconditioned mud to the wells—thus allowing mud in the well to be changed oftener—it has been found that drill pipe does not freeze as often and, when twist-offs occur, it is often possible to pull the fish with an overshot without resorting to washing over.

With the system of allowing mud to settle in large settling basins, it was found that the sand settled out so slowly that considerable mud settled to the bottom along with it. This not only caused the loss of a large quantity of good mud, but also filled up these large settling basins very quickly. As these basins are costly to build, because of the rugged topography, and as suitable

(Continued on Page 73)

*Before southern California section of A.I.M.E., Los Angeles, March, 1930. F. W. Hertel is a petroleum engineer with the Associated Oil Co. and E. W. Edson is an engineer with the same company.

IMPROVED FIRE FIGHTING EQUIPMENT REDUCES HAZARDS TO LOW LEVEL

By E. E. Kerns
Louisiana Oil Refining Corp.*

It is firmly believed that 98 per cent of the fires in our oil refineries are preventable. The refineries of ten years ago were quite different from the refineries of today. Oil fires in those days were thought of as being something that could not be prevented and their daily occurrence was considered merely a part of the business. This meant loss of running time, oftentimes loss of equipment and frequently snuffed out lives that could never be replaced.

Today, with the advanced knowledge of operation and with improved fire fighting equipment, we have been able to reduce such hazards to a low level. Many workmen of this day do not consider working in an oil refinery any more hazardous than working around a printing press or a machine shop. Not only is it essential to have adequate fire equipment but it is just as important to keep this equipment in good condition and ready for use at all times. The equipment should be given constant attention to make certain it will serve its purpose when the need arises. To be sure of this it is necessary to conduct periodic and frequent inspections of the foamite, water, and steam systems.

In considering these three systems separately and briefly, there are certain factors that must be considered in the original design as well as in the upkeep. In laying out a foamite system it is of prime importance to have sufficient chemical storage to take care of the oil storage capacity of said plant and to have pumps of sufficient size to pump these chemicals to the desired location. To determine the capacity of a pump, 5 gallons per minute should be figured for each 100 square feet of oil surface of the tank having the largest diameter. Then install two pumps of this capacity so as to have a spare in case two or more tanks go afire at the same time, or in case it is necessary to repair one pump.

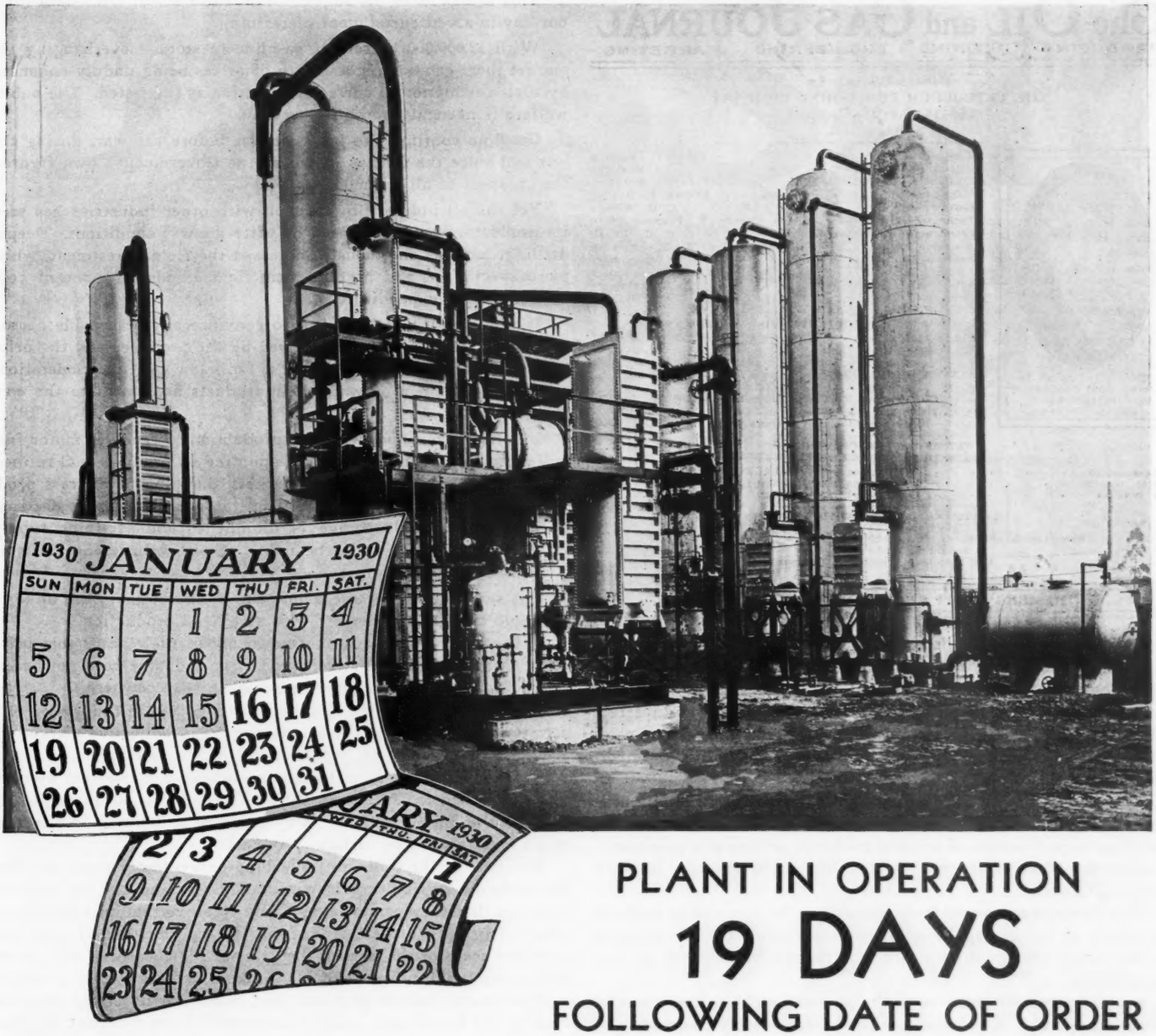
Laying Out a System

The proper size lines should be used to get the desired quantities of solutions to the source of fire without putting excess pressure upon the pump. So far as possible all mains should be looped so solutions as well as water reach any point from two directions. All property protected should be divided into sections and the mains should be so valved that solutions can be delivered to each section individually. Drip cocks should be placed at frequent intervals and at all low points to provide complete draining of lines after use. Of course, we must take into consideration the line friction from the pump to the hoze nozzle, the static head between the pump house and the bottom of the tank at the highest elevation and the height of the mixing chamber or top of the center column above the bottom of the tank. Adding these pressure losses to 50 or 75 pounds per square inch, which should exist at the nozzle, gives us the delivery pressure on the pump and this pressure should not exceed 150 or 200 pounds per square inch maximum. Hence, a safety valve on the pump is of great importance to prevent excess pressure.

For a fire pump to deliver solutions under these pressures it must be in first

(Continued on Page 75)

*Before Manufacturing Committee, Western Petroleum Refiners Association, Shreveport, La., March, 1930.



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FOLLOWING DATE OF ORDER

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A GOOD BEGINNING

Nothing can be lost and much may be gained by plain speaking regarding the present predicament of the oil industry.

A year ago the Federal Oil Conservation Board was in effect rebuked by the Attorney General of the United States for considering a plan submitted by the oil industry for curtailing the overproduction of crude oil.

This year the same Federal Oil Conservation Board boldly asks the refining branch to shut down one day in seven in order to curtail the overproduction of refined products, principally gasoline.

This situation brings out sharply the whole question of antitrust legislation.

The Sherman act prohibited combination in restraint of trade or commerce, or the monopolizing of trade or commerce. It was based on the theory that public welfare requires the maintenance of free competition.

But free competition, free to the point of reckless and wasteful overproduction of an indispensable and irreplaceable commodity of general use, is certainly not for the public welfare.

And that should be as true of overproduction of crude oil as of gasoline, of the raw material as well as of the finished product.

Political bushwhacking and popular misunderstanding have all along assumed that the prime purpose of the antitrust law is to prevent price fixing. But they have overlooked the point which was emphasized in the law of 1922 permitting farmers collectively to market their products.

In Section 2 of that act the Secretary of Agriculture is authorized to act against farmers' associations merely when he has "reason to believe that any such association monopolizes or restrains trade to such an extent that the price of any product is unduly enhanced by reason thereof".

Had that sensible construction been placed upon the antitrust law the oil industry would have been permitted to put into effect the plan to curtail production of crude that was submitted to the Federal Oil Board subject only to governmental action if as a result the price of crude oil was unduly enhanced.

The 1922 law dealing with farmers' associations merely prescribes that the Secretary of Agriculture, in the event of undue enhancement of prices, shall serve notice on the offending association to cease and desist from the objectionable practice, with opportunity for the association to present its case why the order should not be enforced. Appeal to the courts is provided.

This brings us to the suggestion of the Federal Oil Board for a one-day-in-seven curtailment of refining.

With 52,000,000 barrels of gasoline in storage overhanging the market there can be no possibility of prices being unduly enhanced by such a reduction in current production as suggested. The public welfare is not endangered in any way.

Gasoline continues to be, as it was before the war, during the war and since the war, as shown by the Government's own figures, the cheapest of all commodities.

Yet the oil industry in common with other industries has seen its production costs increased by after-the-war conditions. Deeper drilling, too, has enormously increased the field investment, while more specialized and highly scientific methods have meant continually larger expenditure.

It would be a simple matter to convince any reasonable person that the price for crude oil received by the producer and the price of gasoline received by the refiner is far below what their operations should return them or what their products are worth to the consuming public.

Indefinite continuance of overproduction of crude or motor fuel will mean a still further handicap upon the oil producer and refiner, with greater demoralization of markets, dumping of distress products below cost, the wiping out of operators and resultant decrease in production until storage is diminished and declining supply forces famine prices upon the public whose welfare the antitrust law was enacted to protect.

The real interests of the public and of the industry are alike in that both would be better off with stabilized production.

If the politicians could only get it out of their heads that price stabilization by the collective action of an industry need not necessarily mean gouging the public we might get somewhere.

The possibility has been explicitly recognized in the law of 1922 permitting farmers' associations to engage in collective marketing, provided the price of their products is not unduly enhanced.

Provision is made for stopping any undue enhancement by official action, and it has apparently been deemed an adequate protection for the public welfare. Why not similar latitude in the case of oil and gasoline as in farm products?

Members of the cabinet at Washington evidently think so. The Secretary of Agriculture is continually warning the agricultural interests that they cannot expect any improvement in farm prices unless they reduce their production. Overproduction of crops beyond the needs of the market, they are told, is a waste of time, labor and money besides depressing the farmer's returns for his products.

Overproduction of gasoline (and therefore of crude oil), the Federal Oil Board sees, is on all fours with overproduction of other crops. It is an industrial waste, a waste of the national resources and an economic waste to the country by the depression of a great industry.

Industry and business rightly dread any semblance of price fixing or price regulation by government. Nothing of the sort is necessary or to be tolerated. Tacit recognition of the right of industries to, in the language of the farmers' law of 1922, "collectively process, prepare for market, handle, and market" their products provided there is no resultant undue enhancement of price would not place the Government in the position of fixing prices. Prices would be determined by operating costs and a reasonable return, restricted always by the economic law that undue profits stimulate competition and keep prices within the rule of reason.

The petroleum industry, dealing with an irreplaceable crop, is surely entitled to as much consideration against hampering legislation and depressed prices as the producers of any agricultural crop that may be renewed each year.

The Federal Oil Conservation Board, consisting of four members of the cabinet and acting for the Federal Government, has recognized that in its suggestion for the curtailment of the overproduction of gasoline by concurrent action by the industry. It should apply equally to overproduction of crude.

It is a good beginning toward a more enlightened policy in regard to industry and business.

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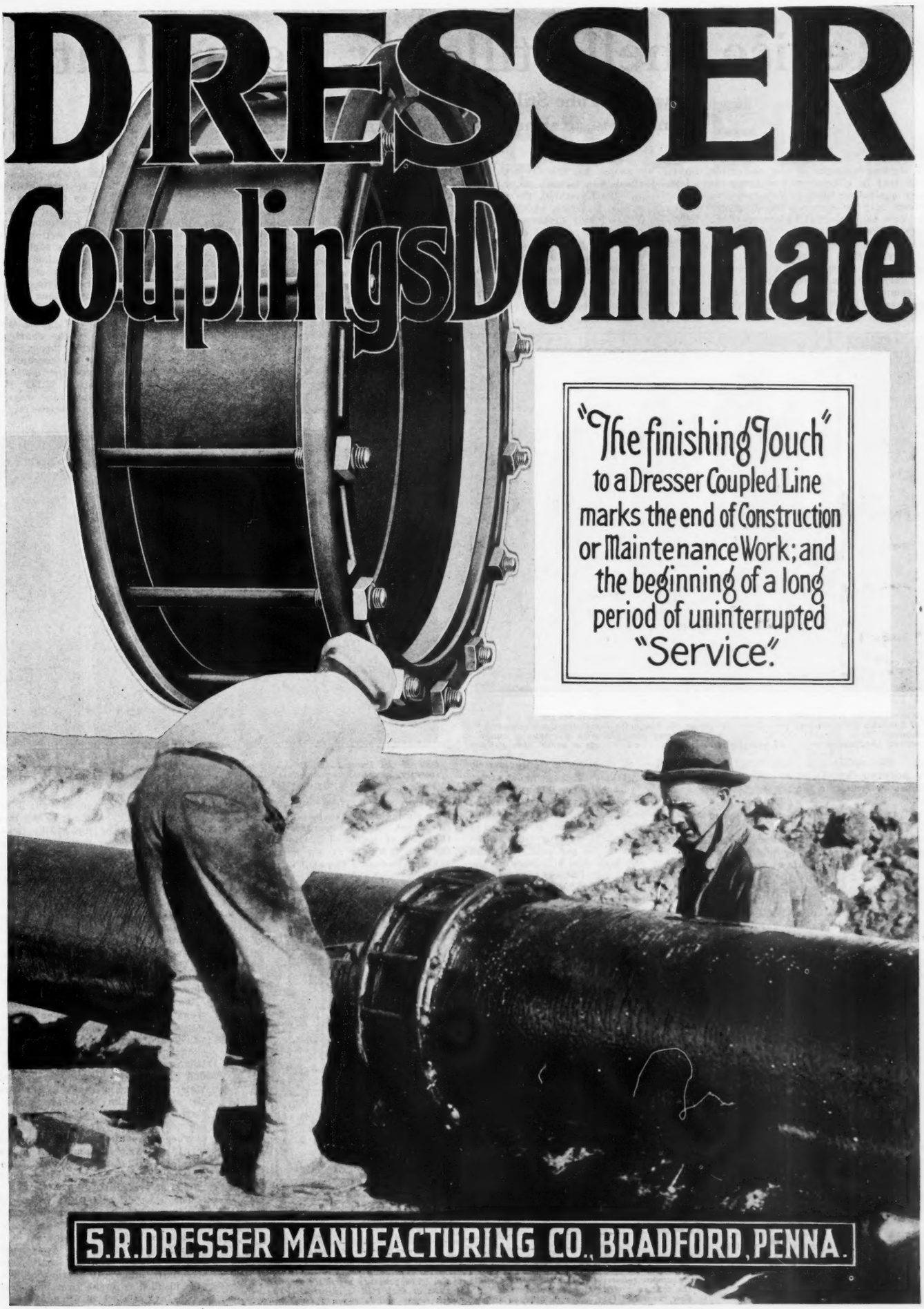

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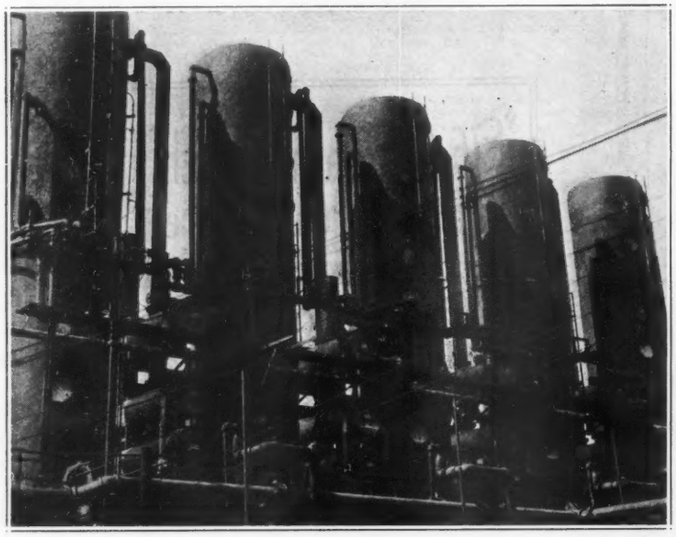
Revise Shell Stills for Rerun Duty

New Fire Tube Stills Prove Very Efficient at Beaumont, Tex., Refinery of Magnolia Petroleum Co.

By W. T. Ziegenhain

A striking example of the economies which may be effected in revamping refinery equipment to improve processing methods may be seen at the Magnolia Petroleum Co.'s plant at Beaumont, Tex., where a line of 20 antiquated 500-bbl. shell stills is being converted into several very efficient pressure distillate rerun batteries. These stills were relieved from duty five months ago at which time the company started the operation of three new 10,000-bbl. pipe still topping units. The reason for converting the stills to rerun duty is better understood after briefly reviewing the present operations.



Picture showing arrangement of the five towers and tubular condensers on one of the shell still batteries for rerunning pressure distillate at the Magnolia Petroleum Co.'s refinery in Beaumont, Tex. Twenty 500-bbl. shell stills are being equipped with this type of equipment and the finished units will have a total rerun capacity in excess of 60,000 bbls. daily.

The plant is running crudes produced in five major fields, namely, West Texas, Panhandle, Arkansas, Oklahoma and North Central Texas. The mixture of gas oils produced from these crudes is used as charging stock for the Cross and Burton cracking units and contains a relatively high percentage of sulphur compounds. To make a low sulphur content, color-stable cracked gasoline, it was found advantageous to produce a pressure distillate for rerunning rather than attempt to fractionate to a finished product direct from the units. Coincident with the building of the pipe still units for topping the crude, the company also placed in operation four new 3,000-bbl. Cross cracking units which in turn called for additional rerun capacity. The problem of supplying the rerun capacity is being handled in the following manner: The long line of shell stills is being broken up into batteries of five stills each. The work is still in progress but two of the units are now in operation. One of these units will be described here.

Conversion of Stills

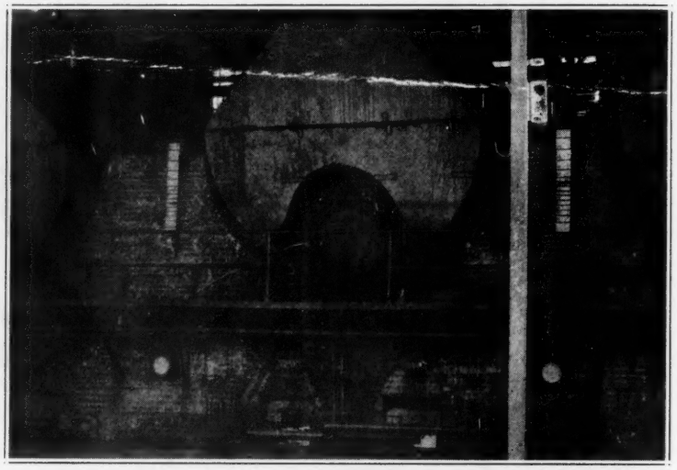
In converting these stills to rerun duty, two factors were held paramount; first, the distillation temperature of the still must be maintained low to minimize the decomposition of sulphur compounds and the formation of polymers, and, second, the unit must be efficient from the standpoint of being able to handle a large throughput at a low fuel consumption, effectively fractionate the overhead cuts, show a minimum distillation loss and be flexible in operation. These requirements have been met very satisfactorily as shown by the accompanying data obtained from actual operation in a test run. Briefly stated, the five-still battery is able to finish 14,000 bbls. of 450 to 460 endpoint pressure distillate per day making 82 per cent of 390 endpoint, color-stable gasoline, 10 per cent furnace oil, 5 per cent bottoms and not over 3 per cent loss. The fuel consumption under the still approximates 108 cubic feet of 950 B.t.p., gas per barrel of distillate charged. The steam used per barrel of distillate is approximately 35 pounds at 260° F. as exhaust steam from the plant. The temperature of the oil in the stills is maintained between 320° F. and 330° F., and the gasoline, after a doctor treatment, is sweet and color-stable with a sulphur content averaging close to .04 per cent. Another index of the high fuel efficiency of the stills is the fact the stack temperatures run about 390° F. The effectiveness of the condensers and cooling boxes and an idea of the subsequent low evaporation loss from the unit may be gained from the fact the stream temperatures in the receiving house range between 75° F. and 80° F., using fresh water as the final cooling medium in the boxes.

Construction of Units

The construction work included the installation of new towers and heat exchangers on each still with the necessary piping and the installation of fire tubes in the still itself. While the new equipment represents a considerable portion of the finished job, the change did not call for any great expense in removing parts. The same still settings and shells were used and the box condensers continue to be effectively used without alteration.

The shell of each still is 12 feet in diameter and 30 feet long. The still ends were cut to take twenty-two 6-inch fire tubes. These were arranged within the area as indicated by the outline of the flue extension shown in the accompanying picture. The still is fired from the front and the rear of the firebox is extended beyond the shell to permit building up a space through which the hot gases may pass in working their way back through the fire tubes within the still shell and then up the stack on the front of the still. Each still is equipped with an 8 by 40-foot fractionating tower containing rectifying sections having ninety 2-inch bubble caps each, and six stripping sections having ninety 3¼-inch bubble caps each. Each still is also equipped with three Griscom-Russell vapor heat exchanger sections containing Admiralty metal tubes.

In tracing the flow of the oil through the unit, reference to the chart shows the fresh feed entering through an exchanger running the hot residuum from the fifth still. Here the distillate is heated to approximately 1,150° F. and then the stream is split four ways, each stream going to the respective top vapor heat exchanger section where it is heated to about 165° F. Then it passes through closed coils in the top of the tower as a means of further preheating the crude and also serves as a control medium for the overhead. After passing through these coils its temperature is about 180° F.



One of the fire tube shell stills at the Magnolia Petroleum Co.'s Beaumont refinery recently converted to rerun duty. Twenty-two 6-inch fire tubes were placed in each shell and arranged within the space outlined by the extension of flue space.

It is interesting to note the flexibility provided for the operation at this point. The distillate may be run through either of two coils in the top of the tower, or through both and the point of entrance of the distillate into the tower may be made at either of three locations as shown.

That portion of the pressure distillate which vaporizes and is taken off at the top of the tower passes down through the three vapor heat exchangers. The upper exchanger is cooled by the incoming distillate previously mentioned and the second and third exchangers are cooled by water. The stream finally passes through the coils in the condenser boxes and then to storage. The first four stills operate in exactly the same manner, the overhead streams from each being identical in quality. Bottom steam is used in all of the stills and is supplied from the exhaust steam gathering system at about 20-pound pressure.

The unvaporized portion from each of the four stills drops down into the still and the overflow is pumped into the fifth tower where it undergoes a final stripping. It enters the tower near the middle section and a small gasoline stream is taken off overhead. This is also blended with the first four gasoline

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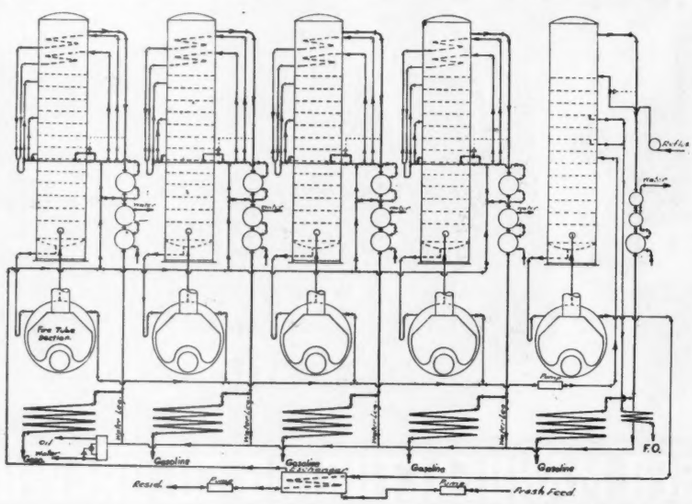

Arrangement of equipment in the five-still battery for rerunning pressure distillate at the Beaumont refinery of the Magnolia Petroleum Co. The pressure distillate is charged to the first four stills simultaneously and the operation of each still is identical. The overflow from the four stills is pumped into the fifth tower and is given a final stripping.

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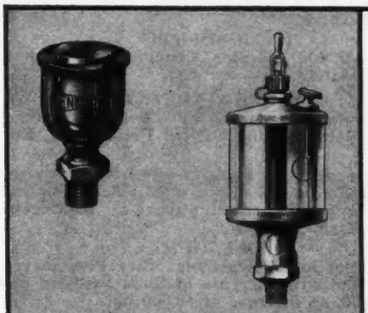

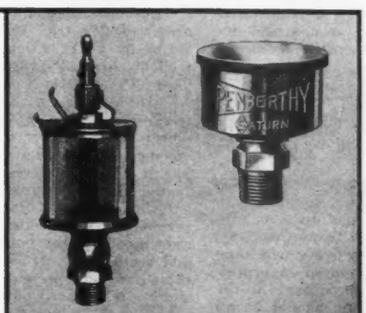

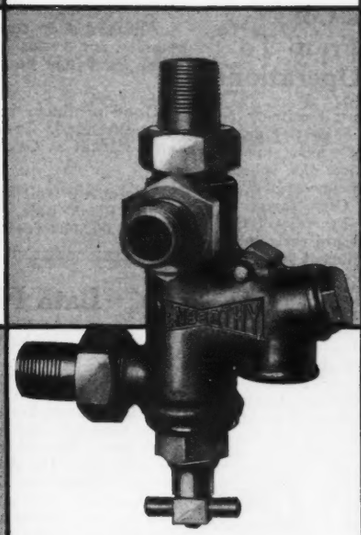

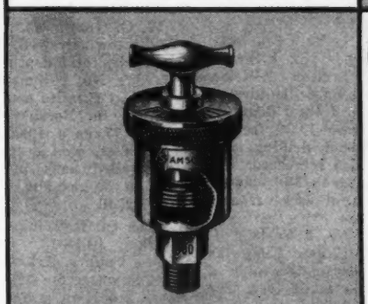

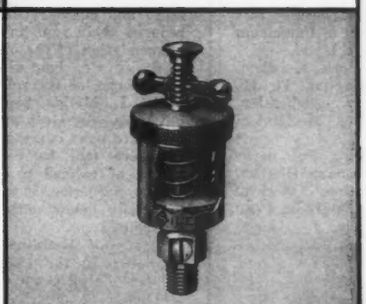

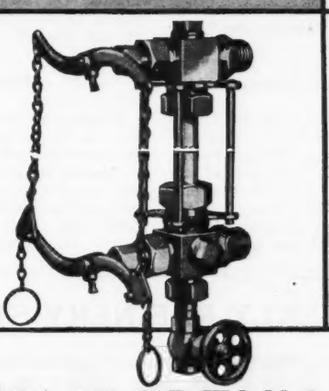

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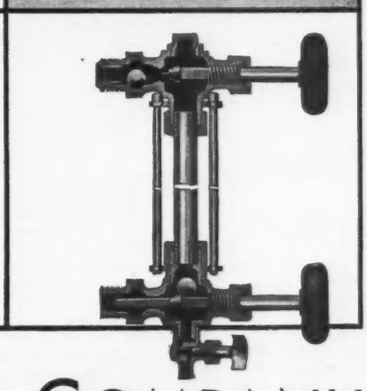

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SOUTHWESTERN ENGINEERS TO MEET AT MIDLAND, TEXAS, APRIL 10-11

The annual spring meeting of the Southwestern district of the American Petroleum Institute Division of Production will be held in Midland, Tex., on April 10 with field trips arranged for April 11. The former Division of Development and Production Engineering has been merged into the Division of Production, under the divisional plan recently instituted by the American Petroleum Institute, and the Midland meeting will be the first big session held under the new arrangement and new name.

A large attendance is expected at the meeting in Midland and elaborate preparations have been made to make the session both profitable and enjoyable. The following papers will be presentend and discussed:

"Methods of Proration in Texas Fields," by L. E. Barrows, division manager, North Central Texas division, producing department, The Texas Company, Fort Worth, Tex. This paper will summarize the methods employed in prorating production to all producers in the Southwestern district and should be an extremely interesting and valuable contribution to this subject.

"Air and Gas Injection Problems," by E. V. Foran, petroleum engineer, Fain-McGaha Oil Co., Wichita Falls, Tex. This paper will deal with factors limiting progress in development of air and gas injection practice. Recent experience in this method for producing petroleum has indicated the need for further development in the apparatus used, to broaden the scope and application of the air and gas injection method. This paper will be discussed from the manufacturer's viewpoint by John Rogers of Ingersoll-Rand Co. and others.

Electric Power Rates

"Report of Special Committee on a Standard Electric Power Rate Structure," by E. C. Allen, general superintendent, Shell Petroleum Corp., Dallas, Tex. The function of this committee is to create a better understanding of electric power costs by simplifying present power rate structure and methods of invoicing power consumption. This subject is of wide interest to all producers in the Southwestern area. At the present time, several methods are in use for invoicing power which are not readily understood by the nontechnical operator and accountant. It is believed that this committee will present an equitable and

(Continued on Page 151)

THE OIL MAN'S CALENDAR

March 19-21—Detroit, Convention, Michigan Oil Men's Association, Statler Hotel.

March 20-21—Los Angeles, Calif., spring meeting, A.P.I. Division of Production, California District, Shrine Auditorium.

March 20-22—New Orleans, La., American Association of Petroleum Geologists, Roosevelt Hotel.

April 5-9—New York, Hoboken, N. J., and Washington, D. C., fiftieth anniversary celebration, American Society of Mechanical Engineers.

April 7—Pittsburgh, Pa., meeting and election, Eastern District, Division of Production, American Petroleum Institute, William Penn Hotel.

April 5-13—Detroit, All American Aircraft Show.

April 7-11—Atlanta, Ga., seventy-ninth meeting, American Chemical Society.

April 7-12—Chicago, annual meeting, American Oil Burner Association, Stevens Hotel.

April 10—Midland, Tex., spring meeting, A.P.I. Division of Production, Southwestern District, Scharbauer Hotel.

April 15-17—Norman, Okla., Gas Measurement Short Course, University of Oklahoma College of Engineering.

April 24-25—Cleveland, Ohio, semiannual meeting, National Petroleum Association.

May 5-8—New Orleans, La., Convention, Natural Gas Department, American Gas Association, Roosevelt Hotel.

May 12-15—Atlantic City, N. J., annual meeting, National Fire Protection Association, Haddon Hall.

May 20-22—Tulsa, Okla., annual meeting, Natural Gasoline Association of America, Mayo Hotel.

May 21-23—Los Angeles, Calif., National Foreign Trade Conference.

June 16-25—Berlin, Germany, World Power Conference.

June 23-26—San Francisco, Calif., Convention, American Railway Association.

June 23-27—Atlantic City, N. J., annual meeting, American Society for Testing Materials.

Gulf Approves Oil Board's Program To Curtail Operations

The movement to curtail refinery operations with the view of preventing the further accumulation of excess supplies, received additional support of a substantial nature with the announcement Tuesday that the Gulf Oil Corp. favors the recommendation of the Federal Oil Conservation Board. The board early in the month suggested a curtailment of refinery runs amounting to approximately 14 per cent.

Since the announcement, a number of large and small refinery operators have reduced their runs in line with the recommendation of the oil board. The Gulf Refining Co. has already reduced the throughput of its refineries. According to W. L. Mellon, president of the Gulf Oil Corp., the Gulf refineries will be operated to meet current requirements only, so there will be further additions to stocks of refined products. The stocks of the refineries, it was stated are substantially below normal for this season of the year.

The Gulf Refining Co. operates five refineries in the United States with a total crude oil capacity of approximately 250,000 bbls. daily.

MISSISSIPPI WELL HAS OIL, SALT WATER SHOW

SHREVEPORT, La., Mar. 18.—Gulf Refining Co.'s No. 1 Rainey, Section 13-5-1e, Rankin County, Mississippi, on the outskirts of Jackson, is shut down for orders at 2,515 feet following a show of oil and salt water. Top of the chalk was at 2,501 feet and a core from 2,510-15 feet showed oil. Drill stem test with the tool open 27 minutes resulted in a flow of oil followed very shortly by salt water and when the stem was pulled it was full of water. This well is about half a mile south of Jackson Oil & Gas Co.'s No. 1 Mays, Section 2-5-1e, which tested 2,000,000 feet of gas with lots of salt water from 2,480 feet total depth and is claimed to have shown some oil positive evidence of which, however, is lacking.

MAGNETIC STORM

The Tucson, Ariz., observatory of the United States Coast and Geodetic Survey reports that a severe magnetic storm started at noon, Mountain time, March 11 and ended at 7 a. m., Mountain time, March 17. The telegrams as received are as follows:

Tucson, Ariz., March 12—"Storm began eleventh nineteen; severe."

Tucson, Ariz., March 17—"Storm ended seventeenth fourteenth."

High Spots in Field News

EAST CENTRAL TEXAS

Eleventh producer in Van Pool small well.

KANSAS

Kansas production, an average of 116,000 bbls. per day, highest in five months.

CALIFORNIA

Gas law decision aiding situation by effect on future development of highly prolific areas.

NORTH TEXAS AND PANHANDLE

Extension well in Gray County estimated 7,000 bbls. with 20,000,000 feet of gas. Nocona Pool active.

MISSISSIPPI

Gulf Refining Co.'s well, Rankin County, shut down for orders after shows of oil and salt water.

SOUTHWEST TEXAS

Darst Creek potential now put at 140,000 bbls. Better showing in new Williamson County Field. Second well in Pettus area, Bee County, better than discovery.

ROCKY MOUNTAIN AREA

Gas blowout in Idaho wildcat confirmed. Tensleep tests in Salt Creek and Mahoney Dome, Wyoming, showing more oil with deeper drilling. New test in southeastern Utah.

OKLAHOMA

Average daily production in Oklahoma City Pool increased from 63,000 bbls. to 85,000 bbls. and with increase in flush fields in Seminole area sent State output to 651,000, an increase of 48,000 bbls.

WEST TEXAS

Another deep test to be made in Tom Green County. Several tests announced for Pecos Valley Pool. First failure in Penn Pool, Ector County. Yates Pool may be reduced to 100,000 bbls.

GULF COAST

Good producer in new Hankamer Field, Liberty County. Refugio Field again extended. Good well in Bayou Bouillon, St. Martin Parish, Louisiana. Semi-wildcat at Orchard, Fort Bend County, makes 2,300 bbls.

NORTH LOUISIANA-ARKANSAS

Discovery well in east end of Zwolle Field goes dead after having produced 340,000 bbls. Wildcat 2 miles south of Bellvue production deepened makes 4,000,000 feet of gas and 5 to 10 bbls. of oil, 44 gravity.

Late Fields

KANSAS

Shell Petroleum Corp.'s No. 1 Southwestern College, in Section 2-27-1w, Sedgwick County, has been drilled deeper in the Simpson sand to a total depth of 3,403 feet. The oil rose 1,000 feet in the hole after the deeper drilling, and the gas volume was also increased. The well had been making about 130 bbls. of oil a day and 750 bbls. of water from a total depth of 3,396 feet.

Tatlock and others' No. 1 Sackem, C SW SE, Section 25-17-9w, Ellsworth County, a wildcat, is estimated to be a 25-bbl. well in sand at 3,251 feet. The well may be drilled deeper and if it makes a commercial well it will add another county to the Kansas areas producing oil.

NORTH LOUISIANA-ARKANSAS

SHREVEPORT, La., Mar. 18.—Benedum & Trees Oil Co.'s No. 1-A Bowman-Hicks, Section 34-8-12, Sabine Parish, discovery well in the east end of the Zwolle Field where most of the play now is, completed by R. L. Gay last November 26, went dead suddenly Sunday morning. Since completion it has made 340,000 bbls. including 5,000 to 10,000 bbls. lost before pits and tankage could be constructed.

W. G. Gray's No. 1 Bolin, Section 31-8-12, a townsite well, is flowing 500 bbls. by heads, total depth 2,405 feet. H. S. Autrey's No. 1 Smith, Section 26-19-11, a wildcat 2 miles south of Bellevue production in Bossier Parish, completed March 11 as a 4,000,000-foot gasser at 1,835 feet, was deepened to 1,950 feet and bailed back in making the same amount of gas and 5 to 10 bbls. of 44 gravity oil.

Lion Oil Refining Co.'s No. 1 Ballard, Section 10-18-13, Urbana district of Union County, Arkansas, got 28 fourbles of salt water on drill stem test at 3,583 feet. Location is a quarter-mile west of Marine Oil Co.'s No. 3-A Thompson, which is producing 800 bbls. of fluid, 40 per cent oil, from 3,539 feet.

OKLAHOMA

Production from the Oklahoma City Pool on March 18 was 63,178 bbls. from 26 wells producing.

Sinclair Oil & Gas Co.'s No. 4 Kinter, SE cor. SW SE, Section 30-11-2w, was shut in for 100,000,000 feet of gas and 5,000 bbls. of oil after the well was per-

(Continued on Page 151)

A.P.I. WEEKLY REFINERY STATISTICS

The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to stills, gasoline stocks and gas and fuel oil stocks—for the week ending March 15 follows:

	(1)	(2)	(3)	(4)
East Coast	100.0	3,322,700	8,985,000	6,457,000
Appalachian	91.0	534,800	1,850,000	666,000
Indiana, Illinois, Kentucky	98.6	2,049,800	8,056,000	2,959,000
Oklahoma, Kansas, Missouri	89.1	2,077,700	4,645,000	3,393,000
Texas	90.4	4,153,100	8,408,000	11,816,000
Louisiana and Arkansas	96.8	1,326,900	2,563,000	2,166,000
Rocky Mountain	93.6	442,100	2,945,000	1,052,000
California	99.3	3,971,200	16,534,000	108,625,000
Total United States	95.5	17,878,300	53,986,000	137,134,000
Total last week	95.5	17,728,700	53,132,000	137,469,000
Texas Gulf Coast	99.4	3,235,400	7,311,000	9,173,000
Louisiana Gulf Coast	100.0	860,400	2,222,000	1,335,000

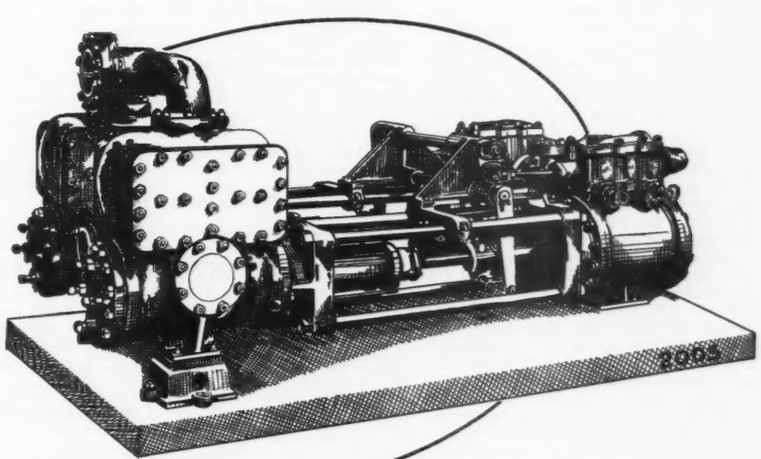
(1) Per cent refinery capacity represented. (2) Crude runs to stills. (3) Gasoline stocks. (4) Gas and fuel oil stocks.

Rx A Panacea for pump troubles

Jacob Bigelow a very learned Doctor, was professor of materia medica at Harvard College. He acknowledged he was selected because he knew more about the worthlessness of drugs than any other living man.

We brought out our line of Block Valve Pumps for about the same reason. We knew the worthlessness of all the existing types of pumps when it came to handling hot tar, or anything hot or thick or both.

Because there is a TRANSIT PUMP for every refinery service, we are in a position to furnish just the right pump to fit the particular service you specify. This to our minds, is a wonderful prescription for refineries with pump troubles.



Agents

FRICK-REID SUPPLY CORPORATION
Tulsa, Okla., or any store.

REPUBLIC SUPPLY COMPANY
of California
Los Angeles, California

E. L. WILSON HARDWARE CO.
Beaumont, Texas.

NATIONAL TRANSIT
Pump & Machine Co.
Oil City, Pa.

DISTRICT OFFICES

NEW YORK PHILADELPHIA PITTSBURGH
CLEVELAND HOUSTON TULSA LOS ANGELES

Agents

F. C. RICHMOND MACHINERY CO.
Salt Lake City, Utah.

REEVES & SKINNER MACHINERY CO.
St. Louis, Mo.

Production Up in Oklahoma City

Flush Fields in Seminole Area Also Increased and State's Production Rose to Average of 652,000 Bbls.

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

Oil production in Oklahoma during the past week shows a material increase which amounts to approximately 48,000 bbls. a day. The State's production average 651,000 bbls. per day for the week ending March 15. The increase was from the Oklahoma City Pool and the flush pools in the Seminole area. The Oklahoma City Pool alone increased its average daily production from 63,000 bbls. to 85,000 bbls. for the week ending March 15.

The shallow horizon on the northeast edge of the Oklahoma City Pool was found productive by the Indian Territory Illuminating Oil Co.'s No. 1 George, SW cor., Section 7-11-2w, when the test showed a saturated core at a total depth of 5,504 feet in sand. The company decided to make a test of the sand and bailed the hole down about 1,200 feet, where it started to flow, making considerable gas and a showing of oil. The well bridged after flowing by heads for about 20 minutes and was shut in. The test is the north offset to the same company's No. 1 Pearl Trosper, NW cor., Section 18-11-2w, which is a small producer in the Silicious lime at a total depth of 6,500 feet.

Indian Territory Illuminating Oil Co.'s No. 3 Fortson-Farley, SE cor., NE NE, Section 24-11-3w, was completed the last part of the week and made 15,272 bbls. in 12 hours from the Silicious lime at a total depth of 6,470 feet.

New producers were added to the south end of the Oklahoma City Pool during the past week. Sinclair Oil & Gas Co.'s No. 1 Vencl, NW cor. SE, Section 31-11-2w, blew in making 2,810 bbls. the first four hours from sand at 6,512-47 feet and 13,010 bbls. in 12 hours. The well has about 10,000,000 feet of gas. It is the most southwesterly producer in the pool. Same company's No. 2 Vencl, NE cor. NW SE, Section 31-11-2w, on the same lease, was completed the day before and made 3,310 bbls. in 20 hours. The oil was coming from the Simpson sand at 6,447-6,526 feet.

Another test to find oil in the southern part of the pool was Tom Slick Oil Co. and Anderson & Prichard's No. 1 Hoopes, NW cor. SW NE, Section 31-11-2w. It flowed 478 bbls. the first hour with about 5,000,000 feet of gas. The well is producing from sand at 6,398-6,508 feet and made 1,064 bbls. in 12 hours.

In the center of the pool in the area producing from the Simpson sand, the Coline Oil Co.'s No. 5 Olds, NW cor. NE NW, Section 24-11-3w, came in making 566 bbls. in four hours, and 2,467 bbls. in 19 hours.

On the west side of the pool Indian Territory Illuminating Oil Co.'s No. 1 Pasadena Heights, NW cor. SE SE, Section 14-11-3w, started at 2,123 bbls. in 6½ hours from a total depth of 6,406 feet, in sand and lime, and made 5,982 bbls. in 12 hours.

A Serious Fire

Sinclair Oil & Gas Co. and Amerada Petroleum Corp.'s No. 5 Kinter, SE cor. NE SE, Section 30-11-2w, which extended the field a half-mile to the east, in the south end of the pool, encountered what is estimated to be 125,000,000 feet of gas, spraying considerable oil from sand at 6,283 feet, and caught fire while being shut in. The large gasser was bailed in and the mud cleaned out when the blaze started. The crew partially succeeded in shutting in the large flow of gas, but the gas was ignited with a blast that shook the other buildings and rigs on the lease, and leaped 100 feet above the top of the derrick.

No one was on the derrick floor at the time and no one was hurt. The cause of the fire is still unknown. Several attempts were made to shut the gate valves but each time the men were forced back on account of the great heat.

After burning for two days and nights the fire was blown out with a charge of high explosive. Two shots were necessary to snuff out the blaze. All of the flame was not coming directly from the top of the casing, since the lower gate was leaking. An iron ring was used to remove the connections on the top of the casing, allowing the gas to shoot straight up out of the ground.

The amount of the damage has not been estimated but it is expected to run into a high figure. The rotary derrick and the complete rotary equipment, three boilers and boiler house were ruined.

Results of Deeper Drilling

One of the older wells on the east side of the pool was drilled deeper and increased its production in the Silicious lime. Prairie Oil & Gas Co.'s No. 1 Hiddleston, SW cor. NE, Section 19-11-2w, was drilled 40 feet deeper to a total depth of 6,475 feet and flowed 8,720 bbls. the first 24 hours after deepening.

Coline Oil Co.'s No. 4 Warren, SW cor. NW SW, Section 18-11-2w, in the northeast part of the field, was completed during the week for 11,622 bbls. the first 12 hours.

Another old producer on the southwest edge of the pool is being drilled deeper. Indian Territory Illuminating Oil Co. and others' No. 1 S. Peterson, NE cor. SW, Section 25-11-3w, was drilling at 6,503 feet in hard lime. The well made 2,835 bbls. of oil in 23 hours from the shallow sand. Same companies were drilling another test deeper on the northeast edge of the pool, No. 1 Pearl Trosper, NW cor., Section 18-11-2w, It was drilling at 6,478 feet in lime and made 64 bbls. of oil during the 24 hours. The test was a small producer in the Silicious lime horizon and will test the deeper possibilities.

The wildcat test east of the pool, Mid-Kansas Oil & Gas Co.'s No. 1 C. A. Trosper, SE cor. NE SE, Section 24-12-2w, encountered a showing of oil in Hunton lime at 6,290-6,300 feet and was coring. The test is a half mile south of the discovery well in the area and is the second well on the 10,000-acre block assembled by the Ramsey Petroleum Co. and later sold to the Mid-Kansas Oil & Gas Co.

Ryan Consolidated Petroleum Corp.'s No. 1 Lawton, NE cor. NW, Section 3-11-2w, was coring at a total depth of 5,230 feet in shale but had no showing.

Indian Territory Illuminating Oil Co. and others' No. 1 Butterfield, SE cor. NE NE, Section 11-11-3w, on the northwest edge of the pool, was also completed during the week. The well made 3,264 bbls. the first 12 hours from the Simpson sand at 6,452-93 feet.

An Important Test

Another wildcat test that is attracting considerable attention is the Pandem Oil Corp. and others' No. 1 Orphanage, NW cor. SE SE, Section 17-12-4w, Oklahoma County, west of Bethany, which had a showing of oil and gas at 4,465-73 feet, was drilling deeper at 4,550 feet March 14. Some express the opinion the test is running favorable on structure compared to another test drilled 2 miles south.

An interest in the well and the 3,200-acre block has been sold by R. M. Johnson and J. Bunn to George E. Nathen of New York for the reported consideration of $300,000 part cash and part in oil. The wildcat test was started by J. F. Cuniff and a half interest sold to the Pandem Oil Corp. and that company has the operation of the well.

Wirt Franklin Petroleum Corp.'s No. 1 Theimer, SE cor., Section 2-11-3w, in the north part of the pool and at present the most northwesterly producer, in the Oklahoma City Field, found oil in the Simpson sand and flowed 241 bbls. in 15 minutes and was then shut in. It was later reopened and under 500 pounds back pressure the well made 446 bbls. the first hour. The second hour it made 661 bbls. and the third hour 764 bbls. with the back pressure lowered to 250 pounds. The well made 7,896 bbls. in 12 hours. The gas volume was estimated to be 30,000,000 feet. The total depth of the well is 6,494 feet.

Another wildcat location was announced during the week in the area north of the Oklahoma City Pool. The location was made by Prairie Oil & Gas Co. and Tom Slick Oil Co. for No. 1 Dills, SE cor. NW, Section 17-13-3w, north of Britton, almost in the center of the block of leases held jointly by these companies. A half-mile west of the new location Prairie and others' drilled a test, No. 1 Wilkins, to approximately 5,130 feet, but lost the hole through mechanical difficulties. The test had been drilling about two years.

Phillips Petroleum Corp. and Anderson-Prichard have staked a new location for No. 1 Floral Hills, NE cor. SW, Section 1-11-3w, on a small tract, in the north part of the field.

The initial production of the shut-in wells in the Oklahoma City Pool that have been allowed to produce for 24 hours or less as of March 14, was 288,058 bbls. The initial production of the wells and the approximate date each well will be opened follows:

Company, lease—	Well No.	Bbls.	Date
I. T. I. O.:			
Watter	*3	2,204	None
G. Button	3	11,118	3-24-30
A. Bodine	5	19,673	3-25-30
Trosper	*8	3,594	3-18-30
Trosper	*10	16,136	3-30-30
Farley-Fuzzell	1	†28,800	4-23-30
Button	4	6,996	3-30-30
Trosper	*9	3,538	3-21-30
A. Brokaw	2	4,599	3-24-30
Trosper	*6	1,925	3-26-30
Fortson	3	19,239	4- 5-30
Drake	*1	4,631	4-18-30
L. Trosper	1	4,080	4-23-30
A. Brokaw	1	7,018	4-24-30
Hiddleston	1	1,525	4-24-30
Jones	*1	6,241	4-24-30
Trosper	5	167	4-30-30
L. Canfield	2	[1]1,374	5- 2-30
N. Emerson	*2	[3]3,545	5- 2-30
S. Bodine	3	[4]801	5- 3-30
Thomas Fuzzell	3	[3]3,524	5- 3-30
A. Bodine	6	3,612	5- 4-30
Canfield-Button	2	2,686	5- 4-30
Barker-Drake	*1	2,589	5- 4-30
Unsell-Krager	*1	[7]2,462	5- 9-30
Theimer	*1	[4]4,558	5-10-30
C. Brokaw	2	[1]563	5-10-30
Jones	*1	[5]4,944	5-12-30
Butterfield	*1	[5]3,264	5-17-30
Pasadena Heights	*1	[5]5,982	5-16-30
Jones Community	*1	[5]4,944	5-12-30
Jones	*4	[1]1,954	5-18-30
Fortson-Farley	3	[15]15,272	5-20-30
Prairie:			
Hiddleston	6	14,000	4-21-30
Hiddleston	7	5,685	4-22-30
W. Franklin:			
Lowery	*4	8,376	4-23-30
Lowery	*7	[11]1,335	5-11-30
Theimer	*1	[7]7,896	5-17-30
Cromwell:			
Trosper-Park	*4	[2]2,975	5-10-30
Sinclair:			
Vincl	*2	[3]3,310	5-14-30
Vincl	*1	14,005	5-17-30
Kinter	*3	[5]505	5-12-30
Coline:			
Olds	*5	[6]3,467	5-16-30
Warren	4	[11]1,622	5-13-30
Slick:			
Hoopes	*1	[1]1,064	5-17-30
Shell:			
Petty	*2	[9]260	5-13-30
Total	46	288,058	

*Wells producing from the Simpson sand. All others are producing from the Arbuckle lime.

†Estimated.

[1] hour. [2] 2¾ hours. [3] 1½ hours. [4] 5 hours. [5] 12 hours. [6] 19 hours. [7] 19½ hours. [8] 20 hours. [9] 22 hours.

The daily production from the Oklahoma City Pool for the seven days ending March 17 was as follows:

Date—	Wells	Bbls.
March 11	26	88,864
March 12	35	76,979
March 13	30	88,516
March 14	28	130,025
March 15	30	99,395
March 16	23	58,902
March 17	21	69,639

Konawa Very Active

The Konawa area is the most active

(Continued on Page 74)

WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location— Remarks:

Smith Brothers' No. 1 Forbes, SE cor. NW NW, Sec. 12-27-11w ..... Shut down 1,232 ft.

J. W. Bailey's No. 1 Acre, SW cor. NE, Sec. 14-24-11w.. Rigging up standard tools 4,660 ft.

BECKHAM COUNTY

Ray Johnson and J. R. Cuniff's No. 1 Brower, C NW Sec. 29-10-22w ..... Location.

Kay et al's No. 1 Martin, C E half E half NW, Sec. 32-8-24w ..... T. D. 3,335 ft.; P. B. 1,990 ft.

Producers Exploration Co.'s No. 1 Seidell, SE cor. SW SW, Sec. 17-9-22w ..... Shut down 2,402 ft.

Carson et al's No. 1 Danby, SW cor. SE NE, Sec. 20-8-22w ..... Shut down 1,575 ft.

BLAINE COUNTY

Lowen et al's No. 1 Unknown, NW cor. SW NW, Sec. 17-16-11w ..... Spudded and shut down.

Washoma Oil Co. et al's No. 1 Phillips, C NW SW, Sec. 12-19-10w ..... Shut down 2,935 ft.

CADDO COUNTY

Abernathy & Brown's No. 1 Horton, SE cor., Sec. 8-6-13w. Shut down 596 ft.

W. J. Hartley's No. 1 Galbreath, SE cor. NW SE, Sec. 29-5-12w ..... Shut down 3,394 ft.

CLEVELAND COUNTY

Harris et al's No. 1 Highbee, SE NW, Sec. 20-6-1..... Drlg. 4,177 ft.

Daniels & LeWright's No. 1 Vandever, C SW, Sec. 15-7-1w ..... Shut down 3,130 ft.

Phillips Petroleum and T. B. Slick's No. 1 Sudick, NE cor. NE, Sec. 8-10-2w ..... Wilcox 7,716-20 ft.; water; plugging back.

COAL COUNTY

W. E. McGraw's No. 1 King, C SW NE, Sec. 11-1-8e.... Shut down 1,235 ft.

COMANCHE COUNTY

Pelwine Oil's No. 1 Howe, C SE SW, Sec. 33-1-9w..... Shut down 1,220 ft.

G. W. Stogner's No. 1 Doebel, C SW SW, Sec. 3-3-9w.... Drlg. 1,000 ft.

Green et al's No. 1 Wilson, C NE SW, Sec. 14-1-12w.... Shut down 4,055 ft.

GARFIELD COUNTY

Shell Petroleum Corp.'s No. 1 Loomis, C NW NW, Sec. 32-23-4w ..... Drlg. 3,573 ft.

(Continued on Page 160)

'Tis better to have cracked and blended than never to have cracked at all

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

Kansas Production on the Increase

An Average of 116,000 Bbls. per Day Is Highest in Five Months. Showings in Remote Areas

By W. A. Spinney
Staff Correspondent, Kansas Fields

A 2,500-bbl. increase in the average daily production of Kansas was noted in the week ending Saturday, March 15. The average for the week was around 116,000 bbls. per day, the highest since last October.

New potentials were taken in the Voshell Pool, in McPherson County, on March 15 and 16. The total production from 22 wells was 14,849 bbls., which is a decline from the gauges taken March 1 and 2, which totaled 11,852 bbls. from 11 wells. The production by wells was as follows:

Company and well—	S.T.R.	Bbls.	March 1 potential
Mid-Kansas, No. 1 Voshell	9-21-3w	932	1,600
McBride, No. 1 Voshell	9-21-3w	17	20
McBride, No. 2 Voshell	9-21-3w	640	1,250
Empire, No. 1 Voshell	9-21-3w	507	1,535
Empire, No. 2 Voshell	9-21-3w	563	1,780
Sinclair, No. 1 Voshell	10-21-3w	510	820
Sinclair, No. 2 Voshell	10-21-3w	753	1,240
Sinclair, No. 4 Voshell	10-21-3w	718	....
Prairie, No. 1 Stucky	10-21-3w	732	....
Prairie, No. 2 Stucky	10-21-3w	1,238	....
Derby, No. 1 Stucky	9-21-3w	615	1,616
Derby, No. 2 Stucky	9-21-3w	600	1,461
Shell, No. 1 Stucky	9-21-3w	400	....
Shell, No. 2 Stucky	9-21-3w	420	....
Shell, No. 3 Stucky	9-21-3w	605	....
Shell, No. 4 Stucky	9-21-3w	1,260	....
Texas, No. 1 Stucky	10-21-3w	751	1,550
Barnsdall, No. 1 Krehbiel	4-21-3w	1,165	....
I. T. I. O., No. 1 Voshell	9-21-3w	706	....
I. T. I. O., No. 2 Voshell	9-21-3w	350	....
Gypsy, No. 1 Krehbiel	3-21-3w	778	....
Gypsy, No. 1 Stucky	4-21-3w	500	....
Total*		14,849	

*Number of wells, 22.

Skelly Oil Co.'s No. 1 Temple, SW cor. NE, Section 13-34-15w, a wildcat test in Barber County, has a showing of oil and gas through 2,500 feet of water from the Viola lime at 5,241-46 feet. The test will land the 5-inch casing at 5,241 feet and a production test will be made. The wildcat test was drilled on a large block of acreage.

Eastern Tests Find Oil

Two tests in eastern Kansas found oil during the past week. The Texokan Oil Co.'s No. 1, in Section 4-33-17, Montgomery County, 12 miles northwest of Coffeyville, found the Simpson pay horizon at 1,173 feet, and it is estimated to be a 100-bbl. well. The well is in the Bellairs Pool opened about five years ago, and extends production a half-mile to the west.

The other test was Ramsey, Barker and others' No. 1 Denton, NW cor. NE NW, Section 10-31-8, in the County Line Pool, in Elk County. The well was drilled deeper from the Oswego and found the new pay horizon in a break in the lime at 2,663 feet. The well had been producing 20 bbls. a day from depth of 1,972 feet. It is the first test drilled to the present depth and may result in deeper drilling for the entire pool.

Another well in Elk County found oil in the Simpson sand in the new Lewis-Sloan Pool, northwest of Howard. It is the second well in the pool to find oil and was drilled by Flem-Orr Petroleum Corp., No. 1 Rader, NW cor., Section 16-29-9. Oil rose 1,100 feet the first hour and in five hours the hole was full of oil. The well made 100 bbls. on its initial gauge. It is expected this will cause several tests to be started in the vicinity. The same company has announced new locations for No. 1 Rader, SE cor., Section 17-29-9, and for No. 1 Morgan, SW cor., Section 8-29-9. The discovery well was completed for an initial production of 180 bbls.

Kansas' Deepest Test

The deepest test in the State is still fishing for casing. It is the Watchorn Oil & Gas Co.'s No. 2 Morrison in Section 20-32-21w, Clarke County. It has reached a total depth of 6,065 feet and is attempting to reach the 7,000-foot level. The test is directly north of Harper County, Oklahoma, which has a test drilling at 7,560 feet which has not as yet found the Wilcox sand.

Considerable activity has resulted from the new well recently completed by the Syndicate Oil Corp. in the Patterson Pool, in Greenwood County in Section 6-24-12, which made 240 bbls. in 10 hours. Prairie Oil & Gas Co. has announced two new locations in Section 1-24-11, west and northwest of the discovery well. Empire Oil & Refining Co. has staked a new location north of the new well.

State's Largest Producer

The Ritz Pool in McPherson County has the largest producer in the State. Operators in that pool agreed to pinch the wells to 50 bbls. a day for the next 45 days. The companies agreeing to the plan were Shell Petroleum Corp., The Texas Company, Dixie Oil Co. and the Amerada Petroleum Corp. The oil in this area is found in the chat but it appears to have large potential possibilities. Shell Petroleum Corp.'s No. 1 Miller, SW cor. SE, Section 1-20-2w, in recent tests appears to be the largest producing well in the State. The well flowed 600 bbls. an hour and made 2,600 bbls. in four hours under a back pressure of 200 pounds. It is estimated it would make 12,000 bbls. in a day if allowed to flow wide open, but has been making about 2,300 bbls. a day. The potential of the Ritz Pool was increased during the week by three new wells, and is estimated to be in the neighborhood of 11,000 bbls. a day. The new wells in the pool were Shell Petroleum Corp.'s No. 1 Koehn in Section 36-19-2w, which flowed 335 bbls. the first 24 hours from chat at 2,965-72 feet. It was an extension to the north. Same company's No. 4 Ritz, SE cor. SW SW, Section 1-20-2w, had 2,000 feet of fluid in the hole when first drilled in. The test had chat at 2,981-85 feet and was still drilling. It was swabbing about 500 bbls. of water and no oil. Another well three-quarters of a mile southeast of the pool, the same company's No. 1 Koehn, in Section 12-20-2w, made 607 bbls. in 24 hours under 75 pounds back pressure. Production from the old wells in the pool varies from day to day and on a recent test were produced as follows: Shell Petroleum Corp.'s No. 1 Ritz pumped 40 bbls.; No. 2 Ritz, 60 bbls.; No. 3 Ritz flowed 300 bbls. Same company's No. 1 Holmes pumped 12 bbls. The Texas Company's No. 1 Munn pinched made 180 bbls. Dixie Oil Co. and Amerada Petroleum Corp.'s No. 1 Flook pinched made 240 bbls.

In Butler County, southwest of Leon, Miller and others' No. 1 Brown, in Section 30-27-6, was nearing the Bartlesville sand horizon and was drilling at 2,450 feet. Some of the wells in the Leon Pool, a mile to the northeast, found a showing of oil at 2,200 feet, this was missed in the Miller test. The Bartlesville sand is expected in the test at approximately 2,700 feet, and if oil production is not found the well may be drilled to the Simpson sand horizon.

In the Rainbow Bend district the McKnab-Bess Oil Co. is drilling two tests and may extend production in the area in southwestern Cowley County. No. 1 A. Johnson, in Section 21-33-3, was drilling at 1,700 feet. The company's No. 1 B. Johnson, in Section 29-33-3, was drilling at 1,200 feet. In the Biddle district in the same county, Roth & Faurot have completed a new rig at No. 2 Holt, offsetting the No. 1 Holt, which found the pay at 2,588-90 feet.

Sumner County Developments

Northwest of Wellington, in Sumner County, the wildcat of Slick, Pryor & Lockhart and others, No. 1 Peasel, NW cor. Section 33-31-1w, the discovery well in the area, was drilled 19 feet deeper in the chat. The present total depth is 3,387 feet. Late reports indicate the well was not improved by the deeper drilling. The top of the chat was found at 3,351 feet. The well is estimated to be good for 125 bbls., but is pinched to 75 bbls. a day, until the offsets are completed. The Carter Oil Co., Sinclair Oil & Gas Co. and Sunray Oil Co. are drilling offsets.

In the Oxford-Churchill area, Blankinship Oil Co. and others' No. 1 Brussard, in Section 36-31-1, Sumner County, was making 100 bbls. from sand at 2,892-2,935 feet. Production in the State Line Pool has been holding steady for the last few months. The pool is located southwest of Caldwell. Gypsy Oil Co.'s No. 1 Williams, the discovery well, was making 30 bbls. of oil and the same amount of water per day. The west offset, same company's No. 1 Enderude, was flowing about 875 bbls. a day, and is the largest producer in the pool. South of this well over the Oklahoma line in Grant County, Dixie Oil Co. and Amerada Petroleum Corp.'s No. 1 Clark, was flowing 375 bbls. a day.

Sedgwick County

The second well in the new Curry Pool west of Wichita, Sedgwick County, may be drilled deeper. Shell Petroleum Corp.'s No. 1 Southwestern College, SW cor. SE SW Section 2-27-1w, was preparing to deepen after the well was found to be making about 110 bbls. of oil and 800 bbls. of water a day, from sandy line at a total depth of 3,396 feet.

Other tests drilling near the city in Sedgwick County were the C. B. Davis and others' No. 1 Van Arsdale, in Section 14-27-1w, which was underreaming the 8-inch casing at a total depth of 3,245 feet. The chat was found at 3,174 feet. North of the Curry Pool, about a mile, a new wildcat test is preparing to start by T. C. Johnson and Slick, Pryor & Lockhart's No. 1 Petrie, SW cor. SE Section 35-26-1w, Sedgwick County. The one hundred and fourteenth well was completed in the Valley Center Pool during the week. Continental Oil Co. and Gypsy Oil Co.'s No. 7 Reed, in Section 1-26-1w, made 248 bbls. the first eight hours, averaging about 31 bbls. an hour, from the Simpson sand at 3,352-70 feet. No. 8 Reed was expected to be completed in a week or two. Same company's No. 10 Hall in Section 7-26-1 was drilling at 3,300 feet and was nearing the pay horizon.

Big Gas Well in Rush County

Milmac Oil Co. and others' No. 1 Mohr, C NW Section 11-18-16w, Rush County, a wildcat test, was making 24,000,000 feet of gas from the conglomerate at 3,506-09 feet. The gas volume increased after the well had been drilled into the gas horizon.

Announcement was made during the week of a new wildcat location by the Independent Oil & Gas Co. and others in southeastern Reno County. The test is No. 1 Doles, SE cor. NW Section 31-25-4w. It will be drilled with rotary tools to a depth of about 4,500 feet to test the Simpson sand. The location is on a block of 1,800 acres on which a favorable geological report was secured. It may be located on the Abilene Arch which ex-

(Continued on Page 136)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless otherwise marked)

BARBER COUNTY

Company, farm and location—	Remarks:
Skelly Oil Co.'s No. 1 Temple Ranch, Section 13-34-15w	Drlg. 5,081 ft.
Robertson et al's No. 1 Powell, SE cor. SE Sec. 11-32-10w	Fishing 4,023 ft.

BARTON COUNTY

Prairie's No. 1 Davidson, NW SE Sec. 4-16-11w	Drlg. 3,030 ft.

BUTLER COUNTY

Joe Liggett's No. 1 Guanther, C SE NE NW Sec. 29-26-7	Rig on ground.
Shell Petroleum Corp.'s No. 1 Harper, SW NE Sec. 35-26-3	Shut down 3,044-46 ft.; water; T. D. 3,051 ft.; abandoned.
Martin et al's No. 1 Flanigan, C SW SE SW Sec. 29-27-3	Drlg. 2,600 ft.

CHASE COUNTY

Urschell et al's No. 1 Lipps, C SW SW Sec. 27-18-6	Drlg. 945 ft.
Steinbuckel et al's No. 1 Stephenson, NE SW Sec. 4-20-6	Drlg. 1,380 ft.
Steinbuckel et al's No. 1 Cook, SE cor. Sec. 21-19-8	Drlg. 950 ft.
E. W. Marland, Inc.'s No. 1 Altemus, SE NE Sec. 33-18-6	Drlg. 2,500 ft.

CHAUTAUQUA COUNTY

Morrow & Son's No. 1 Tucker, C NW NE Sec. 30-32-11	1,000,000 ft. gas 1,571-96 ft.; completed; T. D. 1,985 ft.

CLAY COUNTY

Chrisler et al's No. 1 Tivier, SW cor. Sec. 19-8-3	Shut down 50 ft.

COWLEY COUNTY

Roth & Farrout's No. 1 Adams, C SW NE NE Sec. 19-32-8	Rig on ground.
Prairie O. & G. Co.'s No. 1 Dosbaugh, SE cor. Lot 27, Sec. 18-32-8	Drlg. 1,090 ft.
Milton & Mead's No. 1 Tatum, SE cor. SW Sec. 11-31-6	Drlg. 2,020 ft.

DICKINSON COUNTY

Emery-Curtis & Bryan's No. 1 Hevner, NW SE Sec. 31-13-3	Rig.
Cress' No. 1 Sanden, NE cor. Sec. 12-15-2	Rig.
Prairie's No. 1 Rumold, C NW SW NE Sec. 12-16-2	Drlg. 3,044 ft.
Hiatt & Durham's No. 1 Wendt, NW cor. Sec. 17-16-2	Spudding.
Kruger et al's No. 1 Diehe, C NW NE NE Sec. 17-13-4	Drlg. 2,500 ft.; water.

(Continued on Page 158)

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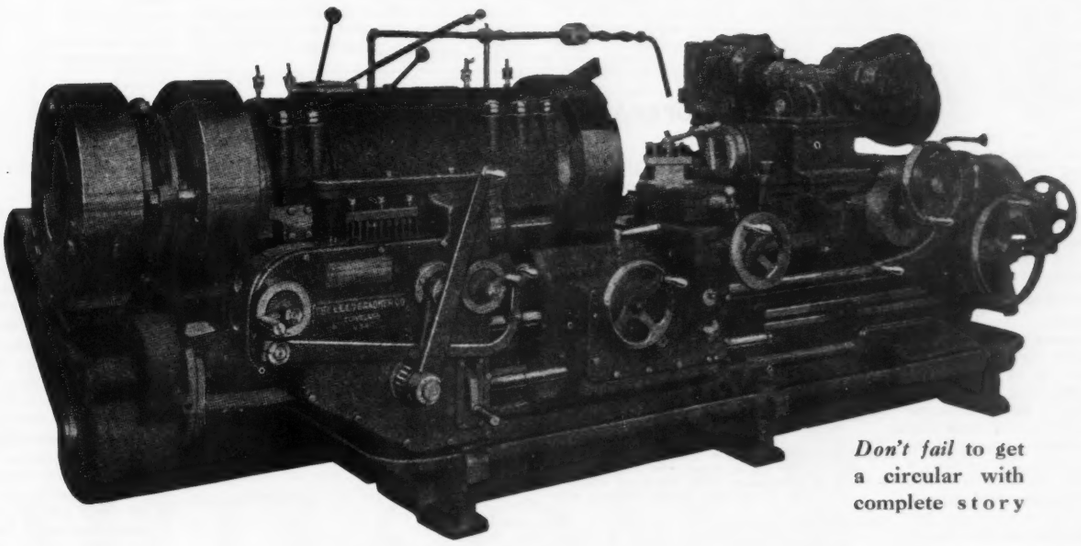

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Western Representative
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Los Angeles, Calif.

Darst Creek Potential 140,000 Bbls.

Better Showing in New Williamson County Field. Second Well in Pettus Area, Bee County, Is Better Than the Discovery

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Mar. 17.—Darst Creek's potential production went to over 135,000 bbls. the past week as a result of recent completions and as shown by the last proration gauge of the field which ended Saturday and will be for the period March 15 to 31. This and a considerably better showing in the new Williamson County Field are among the leading features of the week in Southwest Texas.

Of the wells gauged in the Darst Creek Field in Guadalupe County the potential production is shown by the last gauge to be 135,014 bbls. daily for 92 wells. This does not include three wells belonging to the Turman Oil Co. of Fort Worth and one well belonging to Jake Jarman of San Antonio and the two crevice wells of the Magnolia Petroleum Co., which are not included in the prorating of the field and which bring the total number of wells to 98 and the potential production to around 140,000 bbls. daily.

Of the wells completed the past week none was of particular importance other than the Humble Oil & Refining Co.'s No. 10-A Denman, 1,100 feet from the south line and 1,250 feet from the west line of the lease in the A. S. Emmett Survey, and the Gulf Production Co.'s No. 2 C. Anderson, 450 feet from the north line and 750 feet from the east line of the tract in the Jacob Darst Survey. Both these tests cut the fault plane and hence help to define the northwest line of the field. They are on the limit. The Humble well came in for 800 bbls. a day and the Gulf well came in swabbing about 350 bbls. a day.

The Texas Company completed four wells, all on the Knoblock lease, No. 2-A for 1,800 bbls., No. 4-B for 3,840 bbls., No. 5-B for 1,410 bbls. and No. 6-B for 1,440 bbls.

Jake Jarman's well on fee land, a little 20-foot strip of land between the D. D. Baker land and the Dallas Wilson and Sallie Wilson tracts, came in for 1,000 bbls. a day. It was this strip of land that started litigation in the early days of the field and forced drilling of tests in the southwest end of the field, interrupting the shutdown agreement.

Williamson County

Sconyers and associates' No. 1 Abbott, in the new Williamson County Field, about 2,000 feet north and a little east of the discovery well, is in and flowed the first 24 hours 360 bbls. of oil from a total depth of 1,802 feet. In some ways it makes the field look somewhat better. It is the second producer to be completed, the first since the completion of the discovery well. E. L. Chapman's No. 1 Abbott, the discovery well, is producing from about the same depth but Chapman's No. 1 Fuchs, 400 feet southwest of the discovery well, did not make much of a well at the depth of the discovery well and is now deeper. At 2,017 feet a shot was used from 1,890-1,910 feet, which is about the depth from which the discovery well is producing. The formation is somewhat tight. The test at last reports was swabbing and results of the shot were not yet clear.

Simms Oil Co.'s No. 1 Lawrence is 950 feet east of the discovery well. It cored serpentine at 2,019-29 feet and has shut down. It seems to be off the structure.

The presence of serpentine in that area has been known and there is a chance for a nice field to be developed but it is apparent more tests must be drilled before it can be determined how much of a field it is going to make. Serpentine plugs all up and down the Balcones fault are a foregone conclusion and the industry, or at least that part of it which is acquainted with conditions, is on the lookout for these serpentine fields and prepared to act accordingly when one is found. The Lytton Springs serpentine field paid off in fine shape and it and some others have been very profitable.

Pettus Area—Bee County

Union Producing Co.'s No. 5 Ray, in the Pettus area in Bee County, came in making 79 bbls. of oil an hour on a nine-thirty-second-inch choke, changed later to three-sixteenths and it is still making about the same amount of oil. It is a north offset to the discovery well but is a better well and the first producer completed since the bringing in of the discovery well.

Another feature is the gas showing in the Fisher & Wiggins' No. 1 Kimball, in the Stephen Winshop Survey, about 7 miles southwest of the discovery well. At 800 feet it had so much gas it was necessary to shut down and put on a blow-out preventer. Production in the Union Producing Co.'s No. 5 Ray is at 3,951 feet. Seven miles is a long way off, though many fields extend that distance. There has been some gas encountered in the northern part of Bee County and also at around the same depth considerably farther southwest in Live Oak County.

The striking of this shallow gas showing 7 miles southwest with the gas in the Zoch No. 1 Kaufman about the same distance northeast makes the situation interesting. No. 1 Kimball helps to offset Morgan's No. 1 Ray in the John W. Williamson Survey, 2½ miles southwest of the discovery well which at 3,959 feet, is a little disappointing. Morgan's No. 1 Ray is down 4,180 feet and nothing but a hole in the ground thus far. It cored sand at 3,959 feet but got salt water. Elevation on the Morgan test is 309 feet and on the Humble Oil & Refining Co.'s No. 1 McKinney, the discovery well, the elevation is 370 feet. No. 1 McKinney is 3,975 feet and got the pay at 3,951 feet. It seems agreed the Morgan test is running about 70 feet low. It is continuing to drill.

Fisher & Wiggins' No. 1 Kimball has been carried in reports as the Grayburg Oil Co.'s No. 1 Kimball and also as Bozo & Cooper's No. 1 Kimball. It should be carried as Fisher & Wiggins' No. 1 Kimball.

Offset drilling is starting in the Pettus Field. The Union Producing Co. is starting its No. 7 Ray, a west offset to the Humble's discovery well, and its No. 8 Ray, which is 600 feet south of No. 7 and the Humble Oil & Refining Co. is starting No. 2 McKinney which is 600 feet south of its No. 1 McKinney and an east offset to the Union Producing Co.'s No. 8 Ray. Completion of these offset tests will add considerable production to the new field but it will be quite a while before the drilling of offsets by these two companies will extend the field off their acreage and cause other operators to get into the game of drilling offsets for the Humble owns everything south and the Union Producing Co. everything north and west.

Laredo District

There was only one completion in the Laredo district the past week and it was O. W. Killam's No. 20 Cuellar in Zapata County flowing 200 bbls. of oil at 1,553 feet, topping the sand at 1,534 feet, but Killam-Duggan's No. 12 Cuellar in the same pool which came in flowing 600 bbls. of oil a day and then dropped to pumper stage has come back as a flowing well making at the rate of 1,000 bbls. a day.

In the Cole Field which is now attracting so much attention due to the recent completion in the south end of the field by the Magnolia Petroleum Co., O. W. Killam's No. 18 Bruni, near the station of Bruni on the railroad, tested out for a big gas well at 2,447-58 feet It was a drill stem test and the hole will be drilled deeper. This is probably a new sand at 2,458 feet and indicates new possibilities for that area. Deeper drilling in that area started after the Magnolia Petroleum Co. deepened its No. 1 Benavides which had been a gas well at 1,750 feet and made an oil well out of it at 2,777 feet. Killam's No. 18 Bruni tested for about 60,000,000 to 70,000,000 feet of gas and has started drilling deeper being down 2,550 feet at last report. It will try to develop oil production in the deeper sands. Cole Petroleum Co.'s No. 68 Benavides which is to be a deep test in the same territory was down below 2,000 feet at last accounts. In another week it should be down around where things are interesting.

F. P. Zoch has abandoned his No. 1 King in Duval County in the territory south of the Driscoll Pool. Very few tests have been drilled in that area which by many is considered an important territory. The Zoch test was dry at 4,011 feet where it was abandoned.

Daily average production of the various pools during the past week follows:

SOUTHWEST TEXAS

Branyon	20
Buchanan	33
Bruner	24,076
Dale	353
Darst Creek	15,538
Kingsville	118
Larremore	99
Luling	9,750
Lytton Springs	878
Manford	535
McMullen County	35
Medina County	22
Mirando	8,156
Pettus	674
Somerset	1,630
Taylor	187
Yoast	735
Total Southwest Texas	62,839
Week ending March 8	64,471
Decrease	1,632

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

Company, farm and location—	Remarks:
ATASCOSA COUNTY	
Frontier Oil Co.'s No. 1 Hoffman, 2,122 ft. from E line, 1,550 ft. S line of tract in the John Sharp Sur., 3 miles SW from Somerset Field	T. D. 2,043 ft.; cored lime; showing oil with specks of Serpentine.
BASTROP COUNTY	
H. C. Cate et al's No. 1 C. L. Lackey, 5,150 ft. NW line, 1,500 ft. SW line of 219-ac. tract in the Joshua Gray Sur., 2 miles W from Bateman	T. D. 1,610 ft.; drlg. in sandy shale.
B. L. Batts et al's No. 1 A. A. Alexander, W. M. Eastland Sur., 4,190 ft. to NW line, 1,320 ft. to SW line of Sur.	T. D. 1,420 ft.; drlg. in shale.
Abernathy et al's No. 1 A. Aldridge, in the Martha Barker Sur., 2,750 ft. SE and 450 ft. NE of 241-ac. tract or 2,000 ft. SW and 4,500 ft. NW of Sur.	T. D. 2,270 ft. (corrected depth); fishing.
Superior Oil Co.'s No. 1 A. Lasher, D. Dykes Sur., 600 ft. to S and W lines of Sur.	T. D. 3,050 ft.; drlg. in Del Rio.
BEE COUNTY	
The Texas Company's No. 1 Lasater (core test), 980 ft. N, 20 ft. E from SW cor. of Lasater 170-ac. tract (shown as Hill tract on map), thence 2,100 ft. S, 70 ft. E Jose Maria Uranga Sur.	T. D. 1,278 ft.; abandoned; core test.
Morgan Oil Corp.'s No. 1 Mrs. R. A. McKinney, 350 ft. N of S line, 2,640 ft. W of E line of Mrs. R. A. McKinney tract in the Ryland C. Ballard Sur.	Spudded in.
Ed Price's No. 1 Mrs. Laura E. Weiss, 200 ft. out of NW cor. of B.&B. 640-ac. Sur., E of Normanna, 6 miles W of Blanco Creek in the B.&B. Sur.	Derrick.
Houston Oil Co.'s No. 1 J. F. Portis 288.3-ac., 1 mile SW of No. 1 McKinney, in the A. Smalley Sur.	T. D. 1,500 ft.; drlg. in sandy shale.
Dr. Bozo & Cooper's No. 1 A. J. Kimbell, C 189 acres in the Stephen Winship Sur.	T. D. 800 ft.; gas showing; put on control head; taken over by Grayburg Oil Co.
Morgan Oil Corp.'s No. 1 Geo. A. Ray, 2 miles SW of No. 1 McKinney, NW Medio Creek, NE part Geo. Ray 936-ac. tract in the John W. Williamson Sur.	T. D. 3,957 ft.; tested salt water; drlg. deeper.
The Texas Company's No. 3 Tipps	T. D. 3,500 ft.; cored water sand; no oil show; drlg. deeper.
BEXAR COUNTY	
Burton Oil Co.'s No. 1 P. H. Shook, in the Monjares Sur., 3,150 ft. to E line, 150 ft. to N line of farm, 10 miles SE from San Antonio	T. D. 2,032 ft.; drlg. in chalk.

(Continued on Page 152)

COMPLETIONS

Cole Pool—Duval County

Magnolia Petroleum Co.'s No. 6 Servando Benavides, 330 feet northwest line, 380 feet northeast line, Block 7, Survey 174, O'Hern-Seacord subdivision; total depth 2,820 feet; 60 bbls.

Jennings Pool—Zapata County

Killam-Duggan's No. 12 Cuellar, 150 feet southwest line, 420 feet north line, Survey 278; total depth 1,542 feet; sand 1,538-42 feet; flowed 25 bbls. per hour.

Darst Creek—Guadalupe County

Gulf Production Co.'s No. 8 Dix-McKean, 300 feet northeast of No. 3, in the J. R. Robinson Survey; total depth 2,561 feet; swabbed 62 bbls. per hour.

Jake Jarman's No. 1 Fee, 490 feet from north end of 20-foot strip off east end of D. D. Baker 60-acre tract, in the Jacob Darst Survey; total depth 2,602 feet; swabbed 40 bbls. first hour.

Gulf Production Co.'s No. 5 Dix-McKean, 1,652 feet northeast line, 150 feet southeast line of tract (corrected), in the J. R. Robinson Survey; total depth 2,618 feet; swabbed 45 bbls. per hour.

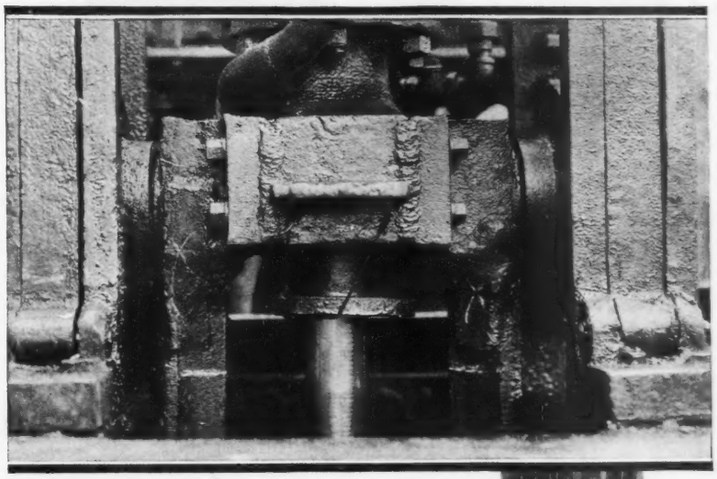
Gulf Production Co.'s No. 6. Dix-McKean, 445 feet from east line, 150 feet from south line of tract, in the J. R. Robinson Survey; total depth 2,594 feet; small pumper.

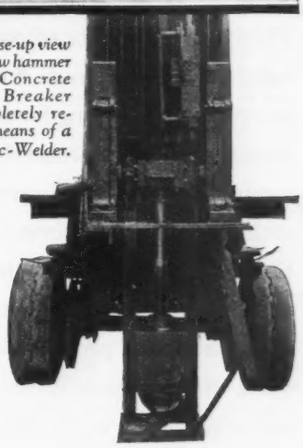
The Texas Company's No. 2 W. R.

(Continued on Page 129)

Fast Work of WILSON Arc-Welders *Saves Costly Delay*

"WHILE breaking up a stretch of pavement on Waukegan Road with one of our new type pavement breakers, we broke the hammer guide. If it had not been for the quick and efficient method of your arc welding job, it would have meant quite an expensive delay, not only to us, but to the well-regulated paving crew. * * We certainly must admit that electric arc welding has saved us a lot of expensive delays and made a good permanent repair." — *Chicago Concrete Breaking Company.*

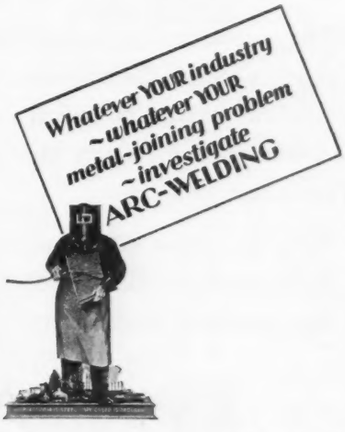




Above: Close-up view showing how hammer guides on Concrete Pavement Breaker were completely repaired by means of a Wilson Arc-Welder.

Both in production and repair work, Wilson Arc Welding Machines are reducing costs—directly and indirectly. Pioneers in arc welding—Wilson, with their long experience and great accumulation of welding knowledge, invites you to consult freely with their engineers.

No matter what your welding purpose, you can secure the correct grade (analysis) of Wilson "Color-tipt" Wire for the particular metal you are welding. And no matter when the wire is purchased, every rod runs exactly the same as every other rod of the same grade and diameter. This *correct analysis* and *perfect uniformity* of Wilson Wire ensure *more metal* deposited in the weld, which results in welds of the utmost strength and permanence, and a saving in time and labor. Send for a sample of Wilson Wire today —just indicate the kind of metal you wish to weld.



WILSON WELDER & METALS CO. INC., 18 WILSON BUILDING, HOBOKEN, N. J.

WILSON

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This picture shows the ease with which Alcoa Aluminum Foil is applied to oil storage tanks

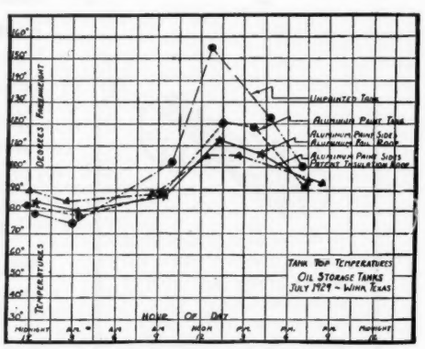
Three major benefits recommend Alcoa Aluminum Foil as a protective coating for oil storage tanks. First, come the measurable dollars and cents saving of reduced evaporation losses of the tank contents; second, there are durability and protective properties; third, the comparative ease and speed with which Aluminum Foil is applied.

The evaporation savings are possible because the brightly polished surface of Alcoa Aluminum Foil reflects the sun's heat.

Then too, Alcoa Aluminum Foil possesses excellent corrosion resistance under a very great variety of conditions.

The cost of an aluminum-foiled job is only slightly greater than the cost of using special corrosion-resistant paints for the same area. Foil .003 or more inches in thickness can be applied without difficulty. Although foiling is a new method of surface protection, it has already achieved conspicuous success. Chart at right shows relative heat reflectivity of various tank surfaces.

We will gladly send you full information. ALUMINUM COMPANY *of* AMERICA; 2417 Oliver Building, PITTSBURGH, PENNSYLVANIA.



This chart indicates the relative heat reflectivity of various tank surfaces.

Tank No.	How Painted	Vapor Space Temperatures during a typical 24-hour period Maximum:	Minimum:	Change:
1620	Not painted	127	83	44
1621	Aluminum paint, roof and shell	111	82	29
1625	Aluminum paint, roof and top ring; red paint shell	113	84	29
1622	Insulated roof; Aluminum painted shell	105	86	19
1624	Aluminum foil roof; Aluminum painted shell	102	83	19

These figures and curves taken from a paper presented before American Petroleum Institute, Chicago, December 5, 1929, by Mr. Stanley Gill, Research Department Gulf Oil Company, Houston, Texas, indicate the great possibility of aluminum foil for tank coatings.

ALCOA

ALCOA ALUMINUM
ROLLED INTO FOIL

Small Producer in DeSoto Parish, La.

New Well Is Located 15 Miles Northwest of Previous Nearest Production. Deep Test Is Completed as Wet Gasser

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Mar. 17.—R. O. Roy has a producer in a well on the Farmer land in Section 5-13-13, at Holly, DeSoto Parish, 8 miles north of Mansfield and about 15 miles northwest of nearest production—the old Naborton Pool. It blew in while drilling broken sand and shale at 2,882 feet Thursday, and flowed about 25 bbls. in a series of small heads with an estimated 2,000,000 feet of gas during the hour it was allowed to perform. The oil tested 37.7 gravity and today the crew is busy arranging for a drill stem test. It is the second wildcat producer in the last two weeks. Benedum & Trees completed No. 1 Johnson, Section 7-11-13, 8 miles south of Mansfield, as a 13,000,000-foot gas well at 960 pounds, total depth 2,865 feet, and the first to make any oil since the showings at Benson. Also it is the sixth attempt Roy has made to find production on the block of 6,000 acres or so in the past two years, only one of which, aside from the present case was successful. On August 5, 1928, he completed No. 1 Fuller in Section 6-13-13, making an estimated 20,000,000 feet of gas, total depth 2,827 feet.

Early in the week there was a little flurry over a Caddo Parish wildcat also. C. W. Robinson's No. 1 Wilson, Section 2-15-16, 6 or 8 miles southeast of the old Bethany gas district, made a show of gas and a little oil at 1,182 feet but showed up dry when testing tool was run. In proven territory, Bayou State Oil Corp.'s No. 1 Barr, Section 30-22-15, started pumping 15 bbls. from 1,129 feet and No. 2 Barr was staked immediately. Sam Gold's No. 3 Hunter, Section 17-19-14, Dixie district, carried on the report for the past several months as a potential pumper from 2,457 feet, was abandoned.

Still a third wildcat that attracted some attention, though not so much as it would have were Zwolle, Carterville and DeSoto Parishes developments out of the way, was H. S. Autrey's No. 1 Smith in Section 26-19-11, 2 or 3 miles southeast of Bellevue production. An old well abandoned at 1,836 feet, Autrey took it over, reworked it and it is listed as a 4,000,000-foot gasser, 200 pounds rock, at the same depth.

Deep Test a Gasser

Triangle Drilling Co. answered the question what it intended doing with No. 1 Kilpatrick, Section 7-19-5, Claiborne Parish, a wildcat about 18 miles southeast of Homer production, by making it a completion with 1,000,000 feet of very rich gas—estimated richer than Cotton Valley deep gas—and 20 bbls. fluid, 50 per cent salt water, total depth 4,558 feet. Scheduled to go 7,000 feet when it was started with plenty of help from major companies, the wildcat cored 13 fleet of sand 4,358-71 feet and tried to blow out and was drilled to 4,518 feet with no better results. Deepened to 4,540 feet with a slight increase in gas but no improvement in oil it was decided to finish it "as is" after it failed to flow on setting tubing and packer on top of liner. Oakes and others decided to abandon the deep test they started in Section 19-21-7 over a year ago and drilled to 1,700 feet. The "dope" was that it was right square on the fault line and assistance in meeting expenses was slow in coming. It, also, had been scheduled for a deep test.

There were no completions in Carterville but activity in that area is at an advanced stage. Homer and Smackover in their best days had nothing on Carterville as to difficulty of moving in materials. The land is as flat as a pancake and drainage is poor. Moving in pots and rigs has resolved itself into loading them on mud scows and hitching a string of oxen to it. And even then they don't get through without bogging down. Fifteen hundred to 2,000 hands are employed on one thing or another in the district and the Cotton Belt Railroad at the instance of H. L. Hunt and Louisiana Petroleum Co. is building a spur into the field from Plain Dealing to facilitate getting materials in and oil out and a local transfer service has inaugurated a special bus to the field from here. Emergency corduroy roads also are being built to facilitate traffic. Hopes for a new pay streak at 2,970-3,000 feet prompted by a good show in Bahan & Bahan's No. 1 Mays, Section 26-23-11, were blasted when drill stem test resulted in only salt water and the hole is going on to the 3,100-foot stuff.

Production

Daily average shipments from the several pools during the past week were:

NORTH LOUISIANA

Caddo, light	10,445
Caddo, heavy	2,665
Homer	3,625
Haynesville	4,635
DeSoto-Red River	3,050
Elm Grove	460
Bellevue	695
Cotton Valley	2,490
Urania	5,350
Pleasant Hill	695
Sarepta-Carterville	3,025
Zwolle	4,860
Total North Louisiana	41,995
Week ending March 8	41,745

ARKANSAS

El Dorado	4,000
Smackover, light	5,290
Smackover, heavy	41,705
Stephens	920
Nevada County	1,115
Lisbon	1,040
Champagnolle	4,940
Bradley	85
Mount Holly	150
Total Arkansas	59,245
Week ending March 8	58,105
Both states	101,240
Week ending March 8	99,850
Increase	1,390

New Work Slows Down

New work in both Zwolle and Carterville quieted down during the week but Sabine Parish had five completions, two in Zwolle adding 125 bbls. to the field's total initial production to date, and a failure. Pleasant Hill district had another gas blowout and a wildcat was abandoned. In Zwolle, Amerada Petroleum Corp.'s No. 1 Bowman-Hicks, Section 33-8-12, a half mile northwest of the discovery well started pumping 25 bbls. from 2,456 feet. R. L. Gay's No. 3 Sabine Lumber Co., Section 13-7-14, in the Blue Lake, or west, end of the field, started flowing 100 bbls. by heads of 46.4 gravity oil from 2,439 feet. This is a better quality of oil than his other Blue Lake wells have produced, the others running around 41-44 gravity. On the other hand, his No. 6 Bowman-Hicks in Section 14-7-14 was abandoned as a duster at 2,567 feet, a show of oil at 2,513 feet failing to produce on test. Warner-Quinlan Co.'s No. 1 Peterson, Section 26-8-13, a wildcat 3 miles northwest of the Lide well that started the townsite and adjacent drilling spasm at Zwolle was a salt water hole at 3,000 feet after testing dry at 2,205 feet and 2,550 feet, the latter making only a small show of oil. Their No. 1 Sabine Lumber Co. in Section 34-8-12, a half mile north of the discovery also was a failure at 3,730 feet after bailing dry on a good show at 2,495 feet.

In the Pleasant Hill district of Sabine Parish, Bridges-Clark Oil Co. abandoned No. 1 Guy, Section 33-10-12, as a salt water hole at 3,300 feet. This was the well that blew out last January with an estimated 25,000,000 feet of gas and considerable salt water at 2,486 feet total depth, with sand from 2,470-2,509 feet and sand and shale from there to 2,560 feet. Their No. 1 Gay, Section 3-9-12, about a mile southeast of the Guy location on the edge of Pleasant Hill, duplicated the latter's January performance by blowing in with an estimated 12,000,000 to 15,000,000 feet of gas and a spray of oil from 3,276 feet. It blew for three days through the drill stem without any change in volume pressure or amount of

(Continued on Page 131)

LOUISIANA-ARKANSAS PROVEN AREAS

NORTH LOUISIANA
BOSSIER PARISH—CARTERVILLE

Company, farm and location—	Remarks—
Arkansas Fuel Oil Co.'s No. 1 Bollinger, Sec. 38-23-11	Full of oil; setting tubing and packer; T.D. 3,174 ft.
Arkansas Fuel Oil Co.'s No. 2 Bollinger, 330 ft. S, 330 Ft. W NE cor. SW SW, Sec. 25-23-11	Rig up.
Bahan & Bahan's No. 1 G. W. May, 660 ft. S, 660 ft. W NE, cor., Sec. 26-23-12	Hole full S.W. 200 ft. oil; arranging to deepen; T.D. 2,970 ft.
Bahan & Bahan's No. 1 Floyd Pleasant, 150 ft. N, 150 ft. W, C, Sec. 25-23-12	Rig up.
E. W. Bateman's No. 1 Bollinger, 200 ft. S, 200 ft. E, NW cor., Sec. 38-23-11	Rig up.
E. W. Bateman's No. 2 Bollinger, 200 ft. S, 200 ft. W, NE cor., Lot 29, Sec. 38-23-11	Location.
Del.-La. Dev. Co.'s No. 6 Bolinger, 330 ft. S, 220 ft. W, NW cor. Lot 17, in Lot 16, Sec. 31-23-11	Rigging up.
Askew & Goodman's No. Roberson, 330 ft. S, 282 ft. W, NE cor. SW SW, Sec. 25-23-11	Rigging up.
Greenwood Prod. Co.'s No. 1 Bollinger, 1,980 ft. N, 1,150 ft. E, SW cor. SE, Sec. 36-23-12	O.W.D.D. 3,071 ft.; rigging up.
Goodman-Johnson's No. 1 Martin, 330 ft. S, 330 ft. E, NW cor. SE, Sec. 26-23-12	W.O.S.R; T.D. 3,169 ft.
Lee Kinnebrew's No. 1 Garnett, 200 ft. S, 200 ft. W, NE cor. SW NW, Sec. 36-23-12	Drlg. 2,300 ft.
Eylers Oil & Gas Co.'s No. 1 Wise, 330 ft. S, 330 ft. W NE cor., Sec. 35-23-11	Derrick.
Lide et als' No. 1 Farrington, 330 ft. N, 330 ft. W, SE cor. NW NW, Sec. 23-23-12	Rig up.
Lide and others' No. 1 Matlock, 2,970 ft. S, 990 ft. E, NW cor., Sec. 26-23-12	Rig up.
H. L. Hunt's (was Love et als') No. 1 Allen, SE cor. NE NE, Sec. 30-23-11	Drlg. 1,000 ft.
H. L. Hunt, Inc.'s No. 4 J. W. Peyton, Sec. 25-23-12	Drlg. 3,096 ft.
H. L. Hunt, Inc.'s No. 5 J. W. Peyton, 990 ft. W, 330 ft. S, NE cor. SE, Sec. 25-23-12	Drlg. 2,400 ft.
H. L. Hunt, Inc.'s No. 6 J. W. Peyton, 990 ft. S, 990 ft. W, NE cor. SE, Sec. 25-23-12	Began drlg. March 6; cmtd. 10-in. 200 ft.; drlg. 1,200 ft.
H. L. Hunt, Inc.'s No. 7 J. W. Peyton, 990 ft. S, 990 ft. E, C, Sec. 25-23-12	Location.
H. L. Hunt, Inc.'s No. 8 J. W. Peyton, 990 ft. E, 330 ft. S, C, Sec. 25-23-12	Rigging up.
H. L. Hunt, Inc.'s No. 9 J. W. Peyton, 330 ft. S, 330 ft. E, C, Sec. 25-23-12	Location.

(Continued on Page 122)

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

NORTH LOUISIANA
AVOYELLES PARISH

Company, farm and location—	Remarks—
R. E. Tippett's No. 1 Chateline, NE NE, Sec. 34-1n-3e	Rigging up.
BOSSIER PARISH	
Nell & Lanier's No. 1 Biedenharn, SE cor., Sec. 23-21-14	W.O.S.R; 930 ft. oil in hole; T.D. 998 ft; arranging to re-test at 998 ft.
S. P. Lanier's No. 1 Le Rosen, 300 ft. S, 1,000 ft. W, NE cor., Sec. 26-21-14	Derrick.
Walker et als' No. 1 Antrim, NW cor. SE, Sec. 28-22-13	S.D. 3,184 ft.
C. L. West et als' No. 1 Sentell & Dickson, 2,310 ft. W, 895 ft. N, SE cor., Sec. 3-20-13	Csg. shale 2,196 ft.
CADDO PARISH	
Magnolia Pet. Co.'s No. 1 Swann, 330 ft. N. 380 ft. W, SE cor. NE SW, Sec. 16-21-14	Began drlg. March 5; cmtd. 10-in. 104 ft.; drlg. 755 ft.
L. B. Mawk's No. 1 Swann, 440 ft. N, 200 ft. E, SW cor., Sec. 23-21-14	Rigging up.
R. W. Norton's No. 1 Hill, 630 ft. N, 1,260 ft. W, SE cor. NE, Sec. 33-23-16	D.S. test 8-ft. sand 4,479 ft; S.W; S.D. 4,496 ft.
I. N. Pharis, trustee's No. 1 Oden, NE cor. SE NE, Sec. 16-19-14	S.D. 2,322 ft; topped sand at 2,396 ft; set 6⅝-in; T.D. 2,409 ft.
C. W. Robinson's No. 1 Wilson, 990 ft. S, 330 ft. W, NE cor. SE, Sec. 2-15-16	Top gas rock 1,281 ft.; tested dry 1,281 ft.; drlg. 1,300 ft.
Old River Oil Co.'s No. 1 Sibley, 300 ft. E, 300 ft. S, NW cor. SE, Sec. 15-19-14	W.O.S.R. 2,455 ft.
Triangle Drlg. Co.'s No. 1 Hardy et als, 660 ft. N, 660 ft. W, SE cor. fractional Sec. 18-19-16	Drlg. 1,500 ft.
CATAHOULA PARISH	
Lochnager Pet. Co.'s No. 1 Taliaferro, 572 ft. E, 396 ft. S, C, Sec. 26-9-6	S.D. 900 ft.
CLAIBORNE PARISH	
El Dorado Chief Oil Co.'s No. 1 Dance, C SW NE, Sec. 27-20-7	S.D. 2,240 ft.
Leue Oil Co.'s No. 1 Taylor, Sec. 16-22-6	Derrick.
CONCORDIA PARISH	
Joe Man et als' No. 1 Maxwell, C, Sec. 35-3n-8e	S.D. account of high wtr; T.D. 400 ft.
DE SOTO PARISH	
Benson Oil Co.'s No. 1 Harris, Sec. 6-10-13	Tested dry; show gas; W.O. 3,650 ft.

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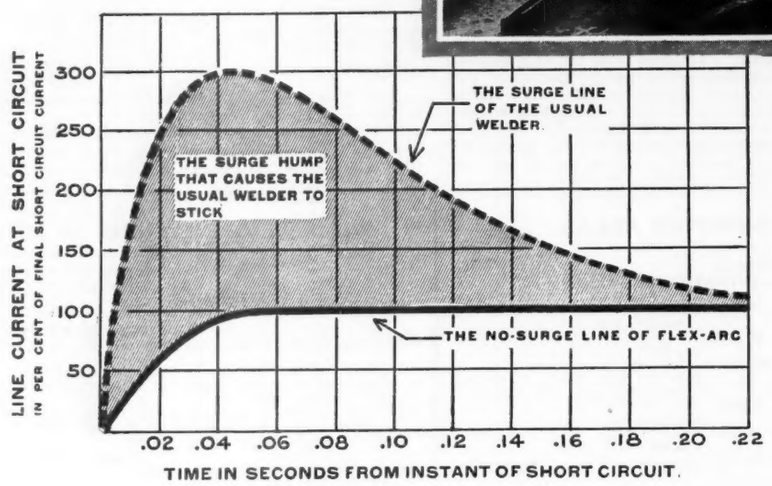
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Gas Law Decision Will Aid Situation

California Conservation Measure an Important Factor in Future Development of Supposedly Highly Prolific Areas

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Mar. 15.—The most interesting development in California during the past week from a production standpoint was the decision of Superior Judge William Hazlett that the California gas conservation law was constitutional and enforceable. This decision climaxes a stubborn fight on the part of several Santa Fe Springs operators who have consistently opposed enforcement of the law in question. The hearing to show cause why a temporary injunction should not be issued should be concluded within the next several days, at which time Judge Hazlett is expected to issue a temporary restraining order which will prohibit the further waste of natural gas at Santa Fe Springs after a definite date to be fixed by the court. This temporary injunction will be issued to cover the period which will be taken up by the arguments of counsel to prevent the issuance of a permanent injunction. In other words, it is expected that Judge Hazlett will issue a temporary injunction establishing a maximum allowable gas-oil ratio for the entire field. Before issuing a permanent injunction, Judge Hazlett will be obliged to inspect the history and record of each individual well in the field. The temporary injunction will be issued for the purpose of eliminating a large part of the present gas waste while he is occupied and engaged in this survey.

The outcome of the State's attempt to enforce the gas conservation law at Santa Fe Springs is not of any great importance as far as that particular field is concerned because this district has already hit the toboggan but it will furnish the basis for future work once a precedent has been established. Approximately 275,000,000 feet of natural gas is being blown into the air at Santa Fe Springs every 24 hours and, while the gas conservation law will conserve this daily wastage, the excess production of natural gas will diminish considerably during the next few months as the period of flush production is drawing to a close. If Judge Hazlett issued a temporary injunction and it is successfully carried out, crude oil production at Santa Fe Springs will probably be reduced from 25 to 50 per cent of the present production approximating 157.000 bbls. daily.

Future Importance

The real significance which attaches to Judge Hazlett's decision that the gas law is constitutional and enforceable lies in the fact that the State will be able to prevent excess production of natural gas in the future by utilizing its police powers. It should be especially applicable at Kettleman Hills where there is an abnormal waste of natural gas due to the fact that wells in this field produce unusually large quantities of natural gas. The gas conservation law, if ultimately declared constitutional by the State Supreme Court, should also prove effective in the future when development work gets under way in the Inglewood, Coyote, Dominguez and Seal Beach fields where additional deep zones are being held back until conditions improve. The situation at Kettleman Hills may prove difficult of solution when the gas law is applied to that field because of the abnormal production of natural gas. Producing wells in this field show an unusually high gas-oil ratio, a daily output of 100,000,000 feet of natural gas to 5,000 bbls. of oil being not at all unusual. Approximately 150,000,000 feet of natural gas is being wasted in the Long Beach Field daily but this is expected to be eliminated in the near future as the director of natural resources has already filed a complaint alleging gas waste. This suit will be heard by Superior Judge William Hazlett immediately upon conclusion of pending action at Santa Fe Springs. The State has also filed a similar suit covering Kettleman Hills and this will be prosecuted immediately upon completion of similar suits at Santa Fe Springs and Long Beach.

It is quite possible that enforcement of the gas law at Santa Fe Springs will eliminate any further necessity of supervision by Umpire Grimm. This is especially interesting in view of the fact that the potential daily production of Santa Fe Springs is dropping so fast that under normal conditions it should not require any further curtailment after June 1 unless a new deep zone is developed. Santa Fe Springs reached its peak production during the latter part of January and the initial production of subsequent completions definitely indicates that the period of substantial flush production is a thing of the past. If the gas law could have been enforced six months ago it would have prevented the waste of considerable gas and increased the ultimate production of crude oil very substantially. There is some consolation in knowing, however, that the industry will profit by past experiences at Santa Fe Springs and Long Beach. State officials will be given an opportunity to apply the gas conservation law from the ground up during the course of the next year, as the new field at Playa Del Rey will probably require regulation of production in order to prevent the waste of natural gas.

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	77,405	110,550
Fuel oil	.....	.....	.....	.....	71,950	.....
Diesel and gas oil	208,742	29,820	72,761	10,394	910,818	389,566
Gasoline	568,563	81,223	347,863	79,695	3,721,885	3,681,954
Naphtha distillate	.....	.....	.....	.....	.....	81,750
Coastwise—						
Crude oil	154,080	22,011	536,800	76,686	2,951,030	5,307,322
Fuel oil	432,340	61,763	226,002	32,286	3,286,181	4,179,056
Diesel and gas oil	31,740	4,534	8,864	1,266	378,089	191,878
Gasoline	203,278	29,045	333,741	47,677	2,077,907	2,182,806
Kerosene	456	65	3,302	472	17,801	3,318
Exports—						
Crude oil	142,639	20,377	96,434	13,776	1,344,345	928,913
Fuel oil	284,297	40,614	372,328	53,190	3,020,882	3,519,703
Diesel and gas oil	56,041	8,006	173,287	24,755	1,108,150	512,999
Gasoline	210,073	30,010	373,742	53,392	2,873,278	1,714,344
Kerosene	230,660	32,951	24,815	3,545	666,704	549,551
Lubricants	.....	.....	.....	.....	5,057	.....

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC AND GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	88,280	.....
Gasoline	.....	.....	.....	.....	285,245	576,684
Coastwise—						
Fuel oil	72,576	10,368	44,784	6,398	611,844	624,580
Diesel and gas oil	8,520	1,217	8,920	1,274	61,986	107,747
Gasoline	202,845	28,978	16,172	2,310	968,580	652,576
Kerosene	2,040	291	.....	.....	93,814	19,529
Exports—						
Crude oil	.....	.....	.....	.....	3,075	71,453
Fuel oil	.....	.....	.....	.....	122,143	96,351
Diesel and gas oil	.....	.....	.....	.....	124,540	62,815
Gasoline	.....	.....	106,632	15,233	690,185	924,763
Kerosene	.....	.....	.....	.....	133,749	69,458
Lubricants	.....	.....	.....	.....	.....	13,693

MT. PLEASANT FIELD IN MICHIGAN SHOWS RESULTS OF SHUTDOWN PLAN

By Special Correspondent

MUSKEGON, Mich., Mar. 17.—The only completion in the Mount Pleasant Field last week was the Dixie Oil Co.'s No. 1 N. Davis, SE SW, Section 2-14n-3w, Chippewa Township, Isabella County. The results of the voluntary shutdown of most of the drilling wells not necessary to complete to meet direct offset requirements and the 75 per cent proration plan placed in effect March 10 were marked. The Dixie Davis well struck the Dundee limestone at 3,515 feet and had the pay sands at 3,546 to 3,588 feet, the bottom of the hole. The well made 160 bbls. initial production.

Three wells of the Pure Oil Co. were shut down at the casing point in the top of the Dundee and will remain so until general conditions in the oil industry have improved, it is understood. Other operators also are expected to co-operate with the Pure company which controls the situation in the Mount Pleasant Field with the only pipe line gathering system.

Two semiwildcat wells near the Mount Pleasant Field looked dry in the Dundee formation although one was attracting attention as operators continued to drill it in the Monroe formation. At 3,765 feet, fully 200 feet lower than the point at which the Dundee formation is encountered in the proven field, J. O. Duryee's No. 1 Johnson I. Bullard well, SE SW, Section 10-15n-4w, Isabella Township, Isabella County, had not yet struck the Dundee. Drilling will be continued.

The Geneva Oil Co.'s No. 1 M. V. Warken, SW SE, Section 8-13n-1w, Porter Township, Midland County, had drilled through the Dundee and into the Monroe formation at 3,552 feet. Dundee was topped high at 3,398 feet in this well which had a show at 3,417 feet and water at 3,446 feet. Drilling will be continued indefinitely.

A show of oil was reported to have been struck in the Dundee formation in the National Petroleum Co.'s No. 1 Oliver W. Gere well, NW NW, Section 13-3n-12w, Hopkins Township, Allegan County. Oily shale was encountered at about 1,920 feet and drilling is to be continued.

The only new permit issued last week by the Michigan Conservation department was for a new Pure Oil Co. wildcat in Allegan County on the Hoeve lease, NE SE, Section 2-4n-14w, Overifel Township.

Muskegon Field

A flow of about 750,000 cubic feet of gas daily had been encountered in the Dixie Oil Co.'s No. 7 Fred Figge well on the Muskegon River flats Saturday, one of four wells drilling into the lower Traverse of Dundee pay sands.

Gas was struck at about 1,875 feet in the Dixie-Figge well. Drilling will be continued until a greater flow of gas or

(Continued on Page 131)

Santa Fe Springs

The initial production of new wells finished in the Santa Fe Springs Field during the past week was very small and confirms the opinion of many that very few incompleted drilling wells in this field at the present time will ever pay out. The General Petroleum, with 26 strings of tools in operation, successfully finished two wells during the past seven day period. These were No. 238 Santa Fe, which came in under a natural flow doing 1,050 bbls. of unusually clean 33.8 gravity oil from 5,334 feet, and No. 145-F, Santa Fe, which showed an initial of 400 bbls. daily from an even 8,000 feet. The latter well, finished in the Clarke zone with 725 feet of perforated, is indicative of the present depleted condition of this horizon. The General Petroleum's next completion at Santa Fe Springs will probably be No. 240 Santa Fe, although No. 186-K, No. 143-B, No. 161-C and No. 207 are also rotating ahead in the oil sand at present. The Texas Company increased its list of producers during the past week by bringing in No. 6 Standlee, flowing 1,080 bbls. of 33.6 gravity oil and 2,900,000 feet of wet gas daily from the Clarke zone at 7,900 feet, the hole having been finished with a 5-inch liner carrying 520 feet of perforated.

George F. Getty put three wells on production in the Santa Fe Springs Field during the past week but only increased his daily production 685 bbls. One of this trio, No. 20-A, was a former upper zone producer redrilled and deepened to the Clarke zone at 8,000 feet. Upon being returned to production it tanked 425 bbls. of relatively clean 35.2 gravity oil during the initial 24-hour test following completion. No. 41, the second well completed by the Getty interests, was also finished in Clarke zone and is being listed as doing 210 bbls. initially from 7,926 feet. No. 46 Baker, another new well, failed to result in a natural flow and Getty was obliged to put it on a compressor at 7,950 feet. It is doing approximately 50 bbls. of 31.6 gravity oil daily at the present time.

The necessity of putting weils on compressors in order to stimulate production in the Clarke zone is ample evidence that Santa Fe Springs will soon ccase to be an important factor in State production. The Shell Oil Co. was obliged to put two new wells on compressors in this field during the past week as both failed to respond in a natural flow, notwithstanding that they were swabbed for several days. These projects were Nos. 28 and 31 on the Golay lease, which were completed doing 455 bbls. and 206 bbls. respectively. No. 28, bottomed in the Clarke zone at 7,925 feet, was finished with a 4¾-inch liner carrying 190 feet of perforated, while No. 31, finished at 7,865 feet, was completed with a 4¾-inch liner including 188 feet of perforated. The Standard Oil Co. has listed No. 22 South Whittier Community as a completed well doing 171 bbls. daily from the Clarke zone at 7,977 feet. The Elmer Oil Co. successfully completed its No. 1 Springs, flowing 360 bbls. initially

from the Clarke zone at 7,890 feet, the hole having been finished with a 5-inch liner carrying 516 feet of perforated. The Ethyl Oil Co. extended the proven limits of deep production in the Santa Fe Springs Field by bringing in No. 8 Butterworth, doing 415 bbls. initially from 7,987 feet. This new well, located on property originally held by the Associated Oil Co., is east of the Standard's South Whittier Community property and west of the Richfield Oil Co.'s Mayberry lease where the initial test is down 8,325 feet at the present time. The first well to indicate the existence of production in the eastern end of the field was No. 2 Sunshine Acres drilled by Rhode & McAdams. This project, one of the first to effect a satisfactory water shutoff in the deep zone, which presented somewhat of a problem because of the high temperature of water encountered, was brought in as a satisfactory producer but suddenly stopped flowing simultaneous with an earthquake which shook the field last year. This well and a number of others ceased production practically simultaneously and operators have been unable to return them to production.

Elwood

Completions in the Elwood Field of Santa Barbara County have been rather infrequent during the past several months, due to an agreement between operators to refrain from competitive drilling in order to stabilize field production. Development work is still being restricted, although several new wells have been started during the past 60 days. The Pacific Western Oil Co. successfully completed its well No. 2 on tideland drilling permit No. 92 and this new well tanked 2,528 bbls. of clean 37.5 gravity oil during the initial 24-hour production test following completion at 3,478 feet. It has subsequently built up, however, and was flowing 4,640 bbls. when orders were issued to pinch it back. This is the third producing well to be finished by the Pacific Western Oil Co. in the Elwood Field and gives the company a potential daily production of 12,000 bbls. The Pacific Western has two other drilling wells under way in this field at the present time, both of which, No. 2 Goleta and well No. 4 on tideland drilling permit No. 92, should pick up the top of the pay within the next few weeks. In addition, the company is pouring concrete for the foundation for No. 3 Blue Goose and is assembling material for well No. 3 on permit No. 92.

The Barnsdall and Rio Grande are working on six wells in the Elwood Field and additional completions may be anticipated in the near future. On the Bell Luton lease, Nos. 12 and 17 are standing cemented and piles are being driven for the foundation on No. 13. Well No. 2 on tideland drilling permit No. 88 picked up the top of the pay at 3,190 feet and casing has been run in for a water shut off. On the Doty lease No. 6 is rotating ahead at 3,450 feet, while well No. 1 on tideland drilling permit No. 95 is cemented at 3,668 feet, and well No. 1 on tideland drilling permit No. 96 cemented at 523 feet. The Elwood Exploration (Honolulu Consolidated) has cemented well No. 2 on tideland drilling permit No. 90 at 3,250 feet. The Signal Oil & Gas Co. is driving piles out beyond the tide line for well No. 2 on tideland drilling permit No. 98.

The Signal Oil & Gas Co. is constructing a pier on the Appleford tideland drilling permit No. 98 at Elwood in order to facilitate the immediate drilling of a well on this property. The well will be located at the end of the pier approximately 1,400 feet from shore. The Appleford property adjoins the Caroline Spaulding permit on the east, on which the Blue Goose well brought in several months ago is still flowing approximately 1,500 bbls. a day, having been given a daily potential during the recent six-day open flow test of 3,067 bbls.

Huntington Beach

The Standard Oil Co. is digging cellar for No. 12 Thompson, a new well to be drilled in the Huntington Beach Field of Los Angeles basin and, while this project will only be carried down to the present productive horizon, it revives interest in the deep zone possibilities of this area. The Superior Oil Co. is contemplating drilling a conclusive deep test at Huntington Beach in the near future, although plans are still more or less of a tentative nature and may be delayed at the insistence of other operators. The Barnsdall Oil Co. has already reached a depth of 5,400 feet in No. 1 Borchard, located on a 60-acre lease in the extreme eastern part of the field adjoining the Surf property of the Standard Oil Co. and should begin picking up the anticipated pay very soon. The Richfield is working on two drilling projects at Huntington Beach, both of which, No. 2 Dieter Golay and No. 1 Heaston, are scheduled for early completion. Curtailment work has been very successful in this field during the past 10 days, daily production having been reduced more than 10,000 bbls. since March 1. A total of 112 producing wells have been shut in by major companies in this field.

Interest in the possibilities of the Newport Field, located at the extreme southern end of the Newport Beverly Sheer zone, along which are located the Long

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MISSISSIPPI WILDCATS ATTRACT ATTENTION; SHOW NEAR JACKSON

By D. H. Bancroft

SHREVEPORT, La., Mar. 17.—The week just closed seems to have been "The Wildcats' Own." There has been more interest in wildcats scattered from Mississippi to Claiborne and DeSoto Parishes, Louisiana, concentrated in the one seven-day period than there has been strung out through the past seven weeks. The latest item in the list came from Jackson Oil & Gas Co.'s No. 1 Mays, Section 2-5-1e, Hinds County, Mississippi, on the outskirts of Jackson. Two weeks ago there came a report of a strong show of gas, estimated at 2,000,000 feet, with about 2,000 bbls. of salt water, total depth 2,480 feet. Friday reports reached Shreveport that the hole had begun making oil and a couple of scouts went over to see what it was all about. So did a flock of lease men. They brought back this: There was some dead looking oil in the pit that looked as if it might have been dope off the casing or lubricating oil from the rig and engine.

Leasing has taken a sudden rise and one Louisiana operator prominent in Monroe and Richland areas has taken five leases with a drilling contract on more than one of them and prices have gone up as usual. The idea, from this angle, seems to be that there could not be such a show without some authority for it at the bottom of the hole.

Nothing has been revealed as to the Jackson company's plans as to this particular test, but in the meantime it has a rig up to drill No. 1 Taylor in the center of the SE Section 35-6-1e, within a mile north of the cause of all the excitement. A week or 10 days ago a press service carried a story that the Reeder well, another Jackson townsite test, which has been under way for the past five years, had blown in as a producer but such does not seem to have been the case. R. L.

(Continued on Page 131)

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well, location—	S-T-R	Depth	Status
Simmel, L. G., No. 1 Inglewood, Los Angeles Co.	21- 2-14	5,380	suspended
Raleigh Oil Co., No. 1 Malibu, Los Angeles Co.	1- 2-19	3,880	suspended
Clearwater Oil Co., No. 1 Bellflower, Los Angeles Co.	21- 3-12	5,150	suspended
Getty, Geo. F., No. 1 Riviera, Los Angeles Co.	27- 2-12	4,472	hd. sd. drilling
O'Donnell, J. E., No. 1 Bandini, Los Angeles Co.	16- 2-12	....	location
Burlingham Pet., No. 1 Compton, Los Angeles Co.	17- 3-13	2,680	suspended
Diller, W., No. 1 Watts, Los Angeles Co.	8- 3-17	4,964	sd. sh. drilling
Crimson Pet., No. 1 Compton, Los Angeles Co.	22- 3-13	mtl.	building rig
Ohio, No. 1 Moneta, Los Angeles Co.	35- 3-14	mtl.	building rig
Cal. Ventura Oil Co., No. 1 Manhattan, Los Angeles Co.	30- 3-14	5,033	resume work
Archer Oil Co., No. 1 Watson, Los Angeles Co.	17- 4-13	5,557	suspended
Harbor Oil Co., No. 1 Wilmington, Los Angeles Co.	18- 4-13	rig	suspended
Shell, No. 1 Van Nuys, Los Angeles Co.	19- 2-15	101	sd. drilling
Anchor Oil Co., No. 1 Puente, Los Angeles Co.	19- 2-10	4,820	suspended
Rucker, R. C., No. 1 Puente, Los Angeles Co.	27- 2-10	3,594	hd. sd. drilling
Sherman, J. W., No. 1 Puente, Los Angeles Co.	33- 2- 8	850	suspended
Keck & Hall, No. 1 Puente, Los Angeles Co.	32- 2- 8	1,130	gas well
Marcel Pet. Co., No. 1 Puente, Los Angeles Co.	31- 2- 8	1,660	hd. sd. drilling
Richfield Oil Co., No. 1 Puente, Los Angeles Co.	34- 1-10	....	location
Los Gatos Oil Co., No. 1 El Monte, Los Angeles Co.	16- 1-11	1,950	hd. sd. drilling
Olympic Corp., No. 1 Calabasas, Los Angeles Co.	18- 1-17	2,300	sd. sh. drilling
Martin, J. W., No. 1 Newhall, Los Angeles Co.	22- 1-17	1,160	hd. sd. drilling
Consolidated Oil Co., No. 1 Newhall, Los Angeles Co.	8- 3-16	1,555	cemented
National Sec., No. 1 Newhall, Los Angeles Co.	1- 3-16	874	suspended
Anderson, P. B., No. 1 Hasley Canyon, Los Angeles Co.	1- 3-16	900	suspended
Pioneer Pet., No. 1 Newhall, Los Angeles Co.	14- 3-16	1,160	hd. sd. drilling
Union, No. 1 Coyote, Sandinena, Los Angeles Co.	30- 2-10	2,199	br. sh. drilling
Beard, G. F., No. 1 Brea Canyon, Los Angeles Co.	30- 2- 9	1,099	suspended
Western Gulf, No. 1 Brea Canyon, Los Angeles Co.	28- 2- 9	3,460	br. sh. drilling
Standard, No. 1 Bastanchury, Coyote, Orange Co.	21- 3-10	4,690	sd. sh. drilling
Shell, No. 1 Bastanchury Coyote, Orange Co.	28- 3-10	6,050	redrilling
Graham & Loftus, No. 1 Coyote, Orange Co.	18- 3- 9	918	sd. drilling
Union Oil Co., No. 1 Richfield, Orange Co.	13- 3- 9	3,430	granite
Mesa Pet., No. 1 Newport, Orange Co.	21- 6-10	4,910	suspended
Oil Well Eng. Co., No. 1 Newport, Orange Co.	21- 6-10	2,795	suspended
Fidelity Pet. Co., No. 1-A Murrietta, Riverside Co.	23- 7- 3	701	cleaning out
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	3,560	bl. sh. drilling
Imperial Valley Oil Co., Well No. 1, Imperial Co.	32-11-10	2,980	suspended
San Marcos Oil Co., Well No. 1, San Diego Co.	9-12- 3	rig	suspended
Turner, S. S., No. 1 Escondido, San Diego Co.	25-12- 2	2,170	suspended
McGregor Synd., No. 1 Del Mar, San Diego Co.	17-14- 3	1,230	sd. sh. drilling
Borderland Oil Co., No. 1 Encinitas, San Diego Co.	12-13- 4	2,200	sd. sh. drilling
Borderland Oil Co., No. 1 Point Loma, San Diego Co.	30-16- 3	550	cleaning out
Grey, H. H., No. 1 Redlands, San Bernardino Co.	25- 1- 2	2,525	cleaning out
Duncan, N. I., No. 1 Mohave, San Bernardino Co.	8- 4- 6	rig	suspended
Girard & Grimes, No. 1 Corona, San Bernardino Co.	8- 2- 8	700	sd. sh. drilling

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well, location—	S-T-R	Depth	Status
Union, No. 1 Buel Canyon, Santa Barbara Co.	X- 7-31	3,896	hd. sd. drilling
Tannehill, L. B., No. 1 Los Olivas, Santa Barbara Co.	23- 7-31	4,277	br. sh. drilling
Standard, No. 1 Point Conception, Santa Barbara Co.	X- 5-34	4,200	br. sh. drilling
Universal, No. 1 Point Conception, Santa Barbara Co.	30- 5-34	mtl.	building rig
Ohio Oil Co., No. 1 Lompoc, Santa Barbara Co.	2- 6-34	2,950	hd. sd. drilling
Prairie Oil Co., No. 1 Lompoc, Santa Barbara Co.	15- 7-35	1,055	br. sh. drilling
Fields Gasoline Co., No. 1 Santa Maria, Santa Barbara Co.	8- 9-33	170	sd. drilling
Barnsdall, No. 1 Gato Ridge, Santa Barbara Co.	9- 8-32	....	building road
Carey, A., No. 1 Goleta, Santa Barbara Co.	1- 4-28	2,880	suspended
General Pet., No. 1 Goleta, Santa Barbara Co.	21- 4-28	4,533	gas well
General Pet., No. 3 Goleta, Santa Barbara Co.	21- 4-28	4,350	cleaning out
General Pet., No. 136 Goleta, Santa Barbara Co.	21- 4-28	1,016	suspended
General Pet., No. 138 Goleta, Santa Barbara Co.	21- 4-28	2,550	sd. sh. drilling
General Pet., No. 137 Goleta, Santa Barbara Co.	21- 4-28	1,026	suspended
General Pet., No. 139 Goleta, Santa Barbara Co.	21- 4-28	1,035	suspended
General Pet., No. 133 Goleta, Santa Barbara Co.	21- 4-28	1,040	suspended
U. S. Pet., No. 141 Goleta, Santa Barbara Co.	20- 4-28	1,035	suspended
U. S. Pet., No. 142 Goleta, Santa Barbara Co.	20- 4-28	1,032	suspended
U. S. Pet., No. 143 Goleta, Santa Barbara Co.	20- 4-28	1,019	suspended
Macmillan Pet., No. 134 Goleta, Santa Barbara Co.	21- 4-28	175	suspended
Caldwell Brown, No. 159 Goleta, Santa Barbara Co.	24- 4-29	....	location
Standard, No. 2 Goleta, Santa Barbara Co.	X- 4-30	3,115	br. sh. drilling
El Camino Oil Co., No. 149 Goleta Tideland, Santa Barbara	22- 4-28	40	suspended
Caldwell Brown, No. 159 Goleta, Santa Barbara Co.	24- 4-29	rig	suspended
Macmillan Pet., No. 134 Goleta Tideland, Santa Barbara	21- 4-28	175	suspended
Standard, No. 2 Goleta, Santa Barbara Co.	X- 4-30	3,060	br. sh. drilling
Frazer & Oliver, No. 173 Capitan, Santa Barbara Co.	4- 4-30	101	suspended
McLaine, W. L., No. 175 Capitan, Santa Barbara Co.	4- 4-30	30	suspended
Durkee, R. S., No. 176 Capitan, Santa Barbara Co.	4- 4-30	30	sd. drilling
Oakburn Oil Co., No. 168 Capitan, Santa Barbara Co.	4- 4-30	370	suspended
Oakburn Oil Co., No. 169 Capitan, Santa Barbara Co.	4- 4-30	200	suspended
Oakburn Oil Co., No. 170 Capitan, Santa Barbara Co.	4- 4-30	1,302	75 bbls. daily
Oakburn Oil Co., No. 171 Capitan, Santa Barbara Co.	4- 4-30	300	suspended
Oakburn Oil Co., No. 172 Capitan, Santa Barbara Co.	4- 4-30	325	suspended
Indian Pet., No. 174 Capitan, Santa Barbara Co.	4- 4-30	230	suspended
Shell, No. 1 Rutherford, Santa Barbara Co.	1- 4-31	1,570	hd. sd. drilling
Wildcat Oil Co., No. 1 Santa Maria, Santa Barbara Co.	20-10-35	4,260	recemented
Pacific Western, No. 1 Gibraltar, Santa Barbara Co.	14- 5-27	2,345	suspended
Shell, No. 1 Summerland, Santa Barbara Co.	18- 4-25	2,325	cleaning out
Standard, No. 1 Casitas, Santa Barbara Co.	26- 4-25	1,383	testing
Continental, No. 1 Carpinteria, Santa Barbara Co.	33- 4-25	4,130	gas well—idle
Continental, Tideland permit No. 121, Santa Barbara Co.	33- 4-25	55	suspended
Continental, Tideland permit No. 122, Santa Barbara Co.	33- 4-25	158	suspended
Continental, Tideland permit No. 123, Santa Barbara Co.	33- 4-25	125	suspended
Continental, Tideland permit No. 124, Santa Barbara Co.	33- 4-25	2,000	deep test
Continental, Tideland permit No. 124-A, Santa Barbara Co.	33- 4-25	418	suspended
Continental, Tideland permit No. 125, Santa Barbara Co.	33- 4-25	120	suspended
Continental, Tideland permit No. 126, Santa Barbara Co.	33- 4-25	200	suspended
Continental, Tideland permit No. 127, Santa Barbara Co.	33- 4-25	145	suspended
Continental, Tideland permit No. 128, Santa Barbara Co.	33- 4-25	98	suspended
Continental, Tideland permit No. 129, Santa Barbara Co.	33- 4-25	97	suspended
Exeter Oil Co., Tideland permit No. 163, Santa Barbara	32- 4-25	18	suspended
Getty, Geo. F., No. 120 Carpinteria, Santa Barbara Co.	32- 4-25	68	cemented
Getty, Geo. F., No. 130 Carpinteria, Santa Barbara Co.	32- 4-25	55	cemented
Shell, No. 4 Oxnard, Ventura Co.	36- 2-22	607	cemented
Standard, No. 5-9 Saticoy, Ventura Co.	10- 2-22	8,529	fishing
Bolsa Chica, No. 1-A Temescal, Ventura Co.	4- 4-18	1,950	br. sh. drilling
Fennell, E. A., No. 1 Piru, Ventura Co.	13- 4-19	1,460	sd. sh. drilling
Associated, No. 1 Rincon, Ventura Co.	19- 4-24	1,228	sd. sh. drilling
Continental, No. 3 Sulphur Mountain, Ventura Co.	21- 4-22	6,415	sd. sh. drilling
Calleguas Synd., No. 1 Camarillo, Ventura Co.	6- 1-20	....	location
Milham Explin., No. 9 Buttonwillow, Kern Co.	8-28-23	4,990	cleaning out
General Pet., No. 1 Buttonwillow, Kern Co.	6-28-23	511	sd. drilling
Lincoln Drlg. Co., No. 1 Buttonwillow, Kern Co.	17-29-24	135	suspended
Shell, No. 1 Weed Patch, Kern Co.	29-30-29	1,195	sd. drilling
Elmer Oil Co., No. 1 Bena, Kern Co.	15-30-30	3,800	suspended
Elmer Oil Co., No. 1-A Rosedale, Kern Co.	33-29-26	5,262	suspended
The Texas Company, No. 1 Edison, Kern Co.	23-29-29	6,170	hd. sd. drilling
Shell, No. 1 Edison, Kern Co.	33-29-29	2,792	hd. sd. drilling
Symark Oil Co., No. 1 Edison, Kern Co.	24-29-29	2,130	suspended
Sayre, F. M., No. 1 Edison, Kern Co.	5-30-29	4,155	suspended
Helen Pet., No. 1 Jasmine, Kern Co.	23-25-27	1,550	suspended
Bardeen, H. A., No. 1 San Emidio, Kern Co.	18-10-23	950	repair rig
Currency Pet. Co., No. 1 Jacalitos, Fresno Co.	28-21-14	3,561	cemented
Knudsen, John, No. 1 Jacalitos, Fresno Co.	14-21-14	1,499	suspended
Petroleum Securities, No. 2 Huron, Fresno Co.	28-20-16	7,390	suspended
Fresno Madera Oil Co., No. 1 Clovis, Fresno Co.	18-12-21	4,290	resumed work
Western Gulf, No. 1 Penoche Valley, Fresno Co.	26-15-12	3,470	sd. sh. drilling
Union, No. 1 North Huasna, San Luis Obispo Co.	12-32-14	5,627	abandoning
Midwest Refining Co., No. 1 Huasna, San Luis Obispo Co.	34-31-15	3,905	gr. sd. drilling
Panorama Oil Co., Well No. 1, San Luis Obispo Co.	7-31-21	4,019	fishing
Paso Robles Synd., No. 1 Creston, San Luis Obispo Co.	27-27-11	3,742	cleaning out
Union, No. 1 King City, Monterey Co.	8-22- 8	2,940	br. sh. drilling
Standard, No. 1 King City, Monterey Co.	23-22- 7	3,780	hd. sd. drilling
Pacific Inland Oil Co., No. 1 Parkfield, Monterey Co.	19-23-15	781	cleaning out
Penn Western, No. 1 Tulare Lake, Kings Co.	24-21-18	1,338	suspended
Wellport Oil Co., No. 1 Devils Den, Kings Co.	9-24-17	3,165	br. sh. drilling
Oceanside Oil Co., No. 1 Kreyenhagen, Kings Co.	32-22-16	300	suspended
Twin State Oil Co., No. 1 Soldani, Mendocino Co.	14-12- 7	2,516	sd. sh. drilling
Barnhart Trust, No. 1 Oakdale, San Joaquin Co.	3- 2-10	2,690	hd. sd. drilling
White, Roy, No. 1 Pixley, Tulare Co.	8-23-26	4,020	suspended
Terminal Oil Co., No. 1 Tulare, Tulare Co.	29-20-25	4,198	suspended
Terra Bella Oil Co., No. 1 Porterville, Tulare Co.	35-22-27	900	sd. sh. drilling
Getty, Geo. F., No. 1 Chowchilla, Madera Co.	8-10-14	1,238	hd. sd. drilling

Confirm Gas Blowout in Idaho Wildcat

Tensleep Tests in Salt Creek and Mahoney Dome Showing More Oil With Deeper Drilling. New Test in Southeastern Utah

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, COLO., Mar. 17.—The Texas Pacific Coal & Oil Co. has made a location for its No. 4 State, in the Cooper area, in Lea County, New Mexico, three-eighths of a mile northeast of its No. 3 State which has been completed at 3,717 feet with a production of 1,687 bbls. the first 24 hours. This company also has made a location to the northwest of production in the Hobbs Pool. The Barnsdall Oil Corp. has abandoned its No. 1 Bronson in the Lovington area. Drilling is at a standstill in the Jal Pool and only one well is drilling in the Lea Pool. Henderson, Dexter & Blair's No. 1 Arnold, in the Maljamar area in Eddy County, has 1,200 feet of oil in the hole from a third break in the lime.

Plans for drilling another test on the Boundary Butte structure in southeastern Utah are under consideration, the first well, which had 17,000,000 feet of dry gas and a show for a commercial oil well in an upper horizon, having run out of hole.

Confirmation of a gas blowout in a wildcat at Payette, Idaho, has been obtained, but the hole bridged and until it is cleaned out, the importance of the discovery cannot be determined.

Colorado had one completion, a 1,000,000-foot gas well on the Model Dome in Las Animas County, drilled for the helium content in the gas. Plans are being advanced for piping natural gas from the Garmesa Dome in Garfield County to Grand Junction and other towns in Mesa County. Final location has been announced for the deep test in northeastern Colorado on the Fort Morgan anticline to be drilled by the Indian Territory Illuminating Co. and affiliated interests.

The Tensleep sand tests in Salt Creek and on the Mahoney Dome in Carbon County, Wyoming, are both showing more oil with deeper drilling. Two completions in Salt Creek made 466 and 398 bbls., respectively. The Ohio Oil Co.'s second well on the Shoshone Dome in Park County is showing oil in the Embar sand.

NEW MEXICO

Another step towards providing cities and towns in central New Mexico with natural gas was taken the past week when the city council of Albuquerque granted a franchise to the Southern Union Gas Co., subject to approval of the voters at an election. The Virginia-Mex Oil & Gas Co., also a bidder for the franchise, may submit its proposal direct to the people at the special election. Las Vegas gave a franchise to interests identified with the Pecos Valley Gas Co. and the Santa Fe franchise went to the Southern Union Gas Co.

Lea County

Drilling operations in the county during the past week included the following:

Cooper Area

The Texas Pacific Coal & Oil Co.'s No. 3 State, NW SW NW, Section 21-23-36, which was reported a producer last week, definitely proving the pool which that company has been developing for some time, was completed at a total depth of 3,717 feet and made 1,687 bbls. the first 24 hours. The pay was at 3,681-3,708 feet. The well has been pinched in to 500 bbls. a day and the oil is being taken by the Texas Pipe Line Co. This well is on a 4,800-acre block and the company has made a location for its No. 4 State, NW NE NW, Section 21-23-36, three-eighths of a mile to the northeast of its No. 3 State. Materials are being moved to the location. This is an offset on the south to Cranfill & Reynolds' No. 1-C State, SW SE SW, Section 16-23-36, which cemented the 8¼-inch on bottom at 3,154 feet, and which is reaching an interesting stage.

Eunice Area

The Empire Gas & Fuel Co.'s No. 1 Closson, NE NW SE, Section 6-22-36, had 200,000 feet of gas per day at 3,737-40 feet and is drilling ahead at 3,765 feet. This well had a big flow of gas in horizons above the present bottom and was delayed for several months shutting it off and getting the hole in condition for drilling deeper. The Continental Oil Co.'s No. 1 William Meyers, SW cor. NW, Section 28-22-36, is bottomed at 3,750 feet and waiting for cement to set.

Hobbs Area

The Texas Pacific Coal & Oil Co.'s No. 1-G State, SE cor., Section 24-18-37, is digging cellar. This location is about 1¼ miles to the northwest of the Humble Oil & Refining Co.'s No. 1 Bowers, the best well so far completed in New Mexico, and half a mile to the northwest of the Ohio Oil Co.'s No. 1 State, NE cor. SW, Section 30-18-38, which has rig completed and is waiting for orders. The Ohio's No. 1 State-Northrup, NE NW SE, Section 32-18-38, midway between the Humble well and the producers to the southeast, is drilling at 1,460 feet in red rock. The Shell Petroleum Corp.'s No. 1 State, SE SW NE, Section 32-18-38, an offset on the north to the Ohio's No. 1 State-Northrup, is spudding at 62 feet. Both of these wells are on the trend of the pool as indicated by the producers so far completed. Harrison and others' No. 1 Tatum, NW SW SW, Section 35-18-38, which was drilled to 275 feet with a machine, is building standard rig.

Tatum Area

A. D. Morton and others' No. 1 State, C NW, Section 32-11-38, is drilling at 4,280 feet in anhydrite.

Lovington Area

The Barnsdall Oil Corp.'s No. 1 Bronson, SE cor., Section 28-16-38, is being abandoned at 5,160 feet after drilling deeper. It topped the lime at 4,697 feet. The elevation is 3,711 feet.

Lea Area

Cranfill & Reynolds' No. 1-D State, SE cor., Lot 6, Section 3-21-33, the only drilling well in the Lea Pool, is standing with the 10-inch cemented at 1,834 feet.

Jal Area

Drilling in the Jal Pool is practically at a standstill with the last completion, the Humble Oil & Refining Co.'s No. 1 Koonce, SE cor. NE, Section 14-25-36, which is flowing an average of 82 bbls. per day from a total depth of 3,325 feet.

Southwestern Area

The Rector Oil Co.'s No. 1 King, NE NE, Section 26-25-32, is drilling at 4,956 feet. It encountered salt water at 4,928-56 feet, the fluid rising 1,800 feet in the hole in 9 hours.

Eddy County

In the Maljamar area, northeast of the Artesia Pool, Henderson, Dexter & Blair's No. 1 Arnold, NE SE SE, Section 23-17-30, encountered a third break in the lime at 3,465-70 feet and the oil rose 1,200 feet in the hole. It is drilling ahead at 3,505 feet. It had 1,800 feet of oil at 3,250 feet which was cased off. Flynn, Welch & Yates' No. 2 Stevens, NE SW, Section 13-17-30, is drilling at 2,000 feet, and L. M. Lockhart and others' No. 2 Wooley, NE cor., Section 28-17-30, had a show of oil at 3,003 feet and is drilling at 3,025 feet. The Pueblo Oil Co.'s No. 5 Russell, SW cor. NW, Section 18-17-31, is rigging up, and Henderson, Dexter & Blair's No. 1 Grier, SW cor. NW, Section 21-16-31, is shut down at 1,370 feet to build road.

In the Artesia area, Flynn, Welch & Yate's No. 57 State, NE cor. SE, Section 19-19-28, is drilling at 3,074 feet in dark gray lime.

In the Twin Mounds area, George F. Getty, Inc.'s No. 5 Dooley, 1,540 feet from the north and west lines, Section 23-20-29, is a location.

In the district to the west of the Pecos River, where there is a noticeable increase in activity, R. D. Compton's No. 1 State, NW cor., Section 2-20-25, is drilling at 825 feet, and F. B. Van Horn's No. 1 Santa Fe, SE SE, Section 18-19-26, is drilling at 1,400 feet. Hammond & Turner's No. 1 Kissinger, Section 13-18-25, a new location, is moving in, and the same firm's No. 1 Wilson & Gossett, Section 26-17-25, is moving in materials.

Chaves County

The Cactus Petroleum Co.'s No. 1 State, SE cor., Section 14-10-26, is drilling at 1,970 feet after setting the 6⅝-inch at 1,853 feet to shut off sulphur water.

Hidalgo County

Phillips, Owensby and others' No. 1 State, Section 14-22s-20w, near the Arizona line, is drilling at 1,420 feet. The 8¼-inch was set at 1,029 (corrected) feet.

McKinley County

J. W. Halsell's No. 1 Santa Fe, SW SW, Section 17-18-9w, Seven Lakes district, is drilling at 3,081 feet with the 5⅜-inch at 3,070 feet.

San Juan County

The Southern Union Gas Co.'s No. 3 Garland, NE NE, Section 11-28-11, Kutz Canon, is drilling at 1,250 feet, and the Dorothy Oil Co.'s No. 2 Goede, NW SE, Section 29-30-9, Blanco district, has resumed after being idle for several months, and is drilling at 1,170 feet. The San Juan Leaseholds Co.'s No. 3 Bowman, NW NE, Section 30-30-15, Meadows district, is drilling at 2,525 feet.

UTAH

The Boundary Butte structure in the Navajo Indian Reservation in southeastern Utah, upon which the companies interested have been drilling a joint test for the past 8 years, may have another test put down if plans under consideration work out favorably. The Continental Oil Co.'s No. 1, NW NW, Section 22-43-22, the deep test drilled by that company for the permit holders, is standing at a total depth of 5,612 feet and it is doubtful if it can be completed as the hole is down to the 3¾-inch casing, the tools are at the bottom and the casing is parted. This well had an aggregate flow of 17,000,000 feet of dry gas below the Shinarump conglomerate, in which it had a show for a commercial oil well at 1,590 feet. Consideration is now being given to the drilling of another test to this horizon. Since the structure is approximately 12 miles long and 4 miles wide and has a closure of 600 feet, a single test is not considered conclusive, especially in view of the showings encountered. The well was started in 1922

(Continued on Page 109)

LARGEST GAS WELL YET DRILLED IN THE TURNER VALLEY FIELD

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Mar. 15.—The production of the Turner Valley Field for February showed a further marked decline of more than 10,000 bbls. from the January total. The February figures are approximately 22,000 bbls. below the peak production for November last, which was over 100,000 bbls. The apparent decline was in part due, of course, to the short month. Apart from this, the temporary freezing of two large producers, Home Oil Co.'s No. 1 and Northwest-Associated's No. 1, was a contributory factor, more than offsetting the new production secured from Home Oil Co.'s No. 4. The latter for the first time figured in the production totals, making, for the month, a total of 6,430 bbls. of light crude and crude naphtha, an average of 230 bbls. a day.

A feature of the February figures is the partial comeback of Royalite's No. 4. The former gusher made 2,873 bbls. in February, more than doubling its January total and averaging better than 100 bbls. a day. Home's No. 2 increased its production 786 bbls. to 4,877 bbls.; British Dominion's No. 2 went up nearly 1,500 bbls. to a total of 2,004 bbls. and the McLeod wells showed an aggregate increase of 565 bbls., making 3,867 bbls. for the month. The other producers practically all showed declines more or less marked.

The outstanding producing well is still Home Oil Co.'s No. 3 which, though it fell off nearly 1,200 bbls., made 16,086 bbls. for the month, a daily average of close to 575 bbls. Merland Oils' No. 1 which had a small light crude production in January did not figure in the February totals, as it is being deepened. Structure Oils' No. 1 and Sioux Ctiy Oils' No. 1, both in the central field, took a small production while drilling, each around 2 bbls. a day.

Deliveries for the month aggregated 56,139 bbls. of crude naphtha and 11,996 bbls. of light crude to Imperial Oil, Ltd., and 10,184 bbls. of both products to Regal Oil Refineries, Ltd. This compared with deliveries to Imperial Oil, Ltd., in January of 66,030 bbls. of naphtha and 11,517 bbls. of light crude; and deliveries to Regal Oil Refineries of 11,428 bbls. The February total for the entire field was 78,319 bbls., compared with 88,975 bbls. in January.

March should make a somewhat better showing. Toward the end of February, three normally large producers, Home's No. 1, Northwest-Associated's No. 1 and Okalta Oils' No. 1, which were affected by freezing during the month, were reported back to practically normal production. The month will show at least one large new producer, Lowery Petroleum's No. 1, where possibilities are indicated of a well equal to Home's No. 3.

Imperial Tests

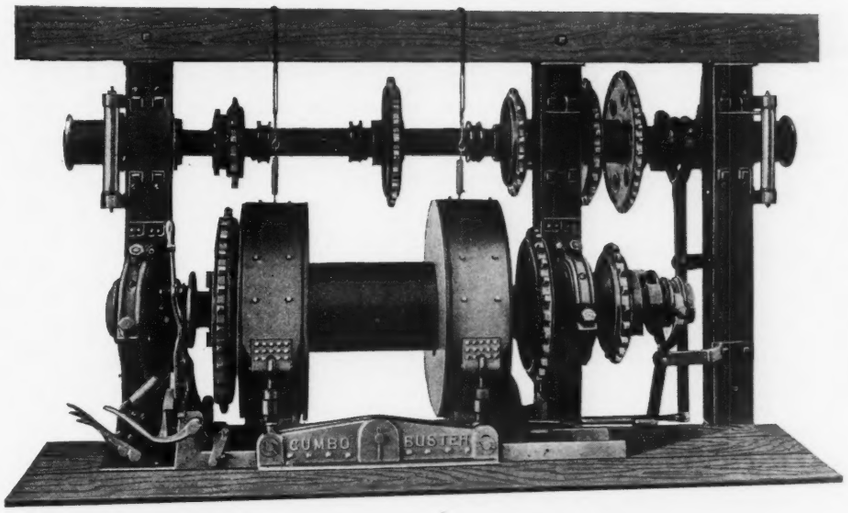
In the south Turner Valley, Lowery Petroleums' No. 1, NW Section 17-19-2w5, drilled by Imperial Oil, Ltd., is now the center of interest. The first well in the south outside Section 20-19-2w5, to get commercial production in the deep lime, it has materially extended the proven field. At 5,473 feet, some

(Continued on Page 129)

Greater Safety in Modern Drilling

with

"Gumbo Buster"



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1. 7″ Line Shaft and 8″ Drum Shaft of heat treated steel.
2. Drum operates on two large roller bearings enclosed in two self-aligning bearing housings.
3. All brake and clutch shifting rigging mounted on one base which can be moved as a unit, facilitating setting up draw works and assuring proper rigid assembly.
4. Catline Rollers are extra large in diameter and operate on roller bearings.
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In modern drilling safety is one of the most important factors.

The need for greater safety has been answered by the new "Gumbo Buster" Roller Bearing Draw Works which eliminates kick-back, enabling one man to handle long strings of pipe. This step toward greater safety is accomplished by a brake on which the leverage ratio is increased 2½ to 1. The brake bands are 13″ wide and are equalized. The compound leverage and wide bands greatly increase the life of the brake linings. ALL CLUTCHES are operated from driller's position by conveniently located foot pedals.

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Because all brake and clutch shifting rigging is mounted on one base this new Draw Works can be moved as a unit and quickly set up. This feature makes it particularly adaptable to foreign fields.

Republic Supply Company

OIL AND GAS WELL SUPPLIES

Cable and Rotary Tools

GENERAL OFFICES: HOUSTON, TEXAS

Good Producer in New Hankamer Field

Gulf Completes Well There Which Flows at Rate of 2,000 Bbls. Refugio Field Extended Again. Production Stationary

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Mar. 17.—Late developments the past week on the Gulf Coast included a 2,000-bbl. producer in the new Hankamer Field in Liberty County, the bringing in of a good well at Bayou Bouillon, St. Martin Parish, Louisiana, several substantial extensions at Refugio, as well as the addition of a half dozen deep horizon wells at Barbers Hill and Humble. The fore part of the week a 2,300-bbl. semiwildcat was completed at Orchard, Fort Bend County. Daily average production for the seven-day period ending March 15 for the Gulf Coast as a whole showed little change over preceding week although there was considerable fluctuation among individual fields.

Gulf Production Co.'s No. 3 Boyt, Amos Allen Survey, Liberty County, attracted the attention of operators to Hankamer when it came in Friday flowing at the rate of 2,000 bbls. daily on a half-inch choke. The well, however, was allowed to flow only a few hours making approximately 800 bbls. when it was shut in for storage. One joint of screen was set in the hole for sand at 4,879-91 feet. The oil is 27 gravity and pressure of the well is 925 pounds.

This is the third well at Hankamer but is the best producer of the three and opens a second producing horizon. The other two wells, Nos. 1 and 2 Boyt, were completed in shallower sands, the former at a total depth of 2,557 feet and the second at 2,925 feet. No. 3 is midway between these two, which are about 600 feet apart, but was drilled down in search of lower horizons. The oil in No. 3 is entirely different, that in the former two being a very heavy grade. No. 1 Boyt was estimated good for 700 bbls. daily but after being shut in a while for storage made a large amount of water. No. 2, which originally was drilled to 3,692 feet, where it blew out and flowed an estimated 15,000 bbls. daily, was plugged to its present depth where it made a 500-bbl. well. This production, however, since has declined very sharply.

Geophysical Discovery

Hankamer is one of the coast's geophysical discoveries, being found in 1928, and, although it has not been proved up yet as a dome it is looked upon as a favorable prospect. The prospective dome originally was believed located approximately a mile to the south in northern Chambers County but a deep test there caused Gulf Production Co. to shift its development to the present area. Another deep test, No. 1 Weiser, G. Stengler Survey, is drilling but has gone to 6,250 feet without any indications. It lies to the southwest of the Boyt wells. Locations have been made for Nos. 4 and 5 Boyt, the former located 1,000 feet north of No. 2, the northernmost well, and No. 5 located 500 feet east of No. 2.

Probably next of importance among coastal wildcat and field developments was Rycade Oil Corp. and Humble Oil & Refining Co.'s No. 5 Atchafalaya fee at Bayou Bouillon, St. Martin Parish, Louisiana. Late reports in Houston Saturday afternoon indicated the well had not cleaned itself but was flowing an estimated 70 bbls. of oil hourly on a half-inch choke with about 5 per cent wash water. This well, which promises to be the first good producer there since discovery well, No. 2 Atchafalaya, was completed in March, 1928, is approximately 2,000 feet to the west of the No. 2 in the new territory and also opens a deeper sand. No. 5 is producing from a sandy shale at a total depth of 4,341 feet as against the other wells at from 3,000 to 3,400 feet.

Bayou Bouillon is one of the oldest known prospects on the Gulf Coast and some production was encountered years ago. The present development, however, is the result of geophysical exploration conducted by Rycade Oil Corp. This company discovered the field and developed it until during 1929 when the Humble Oil & Refining Co. purchased a half interest. The discovery well, which was estimated as good for 4,000 bbls. daily, has been the only one which has made any important production. It since has been deepened to salt and abandoned.

Refugio

Refugio continues as the field most conspicuous among coastal developments and in activity. One of the best wells yet completed at Refugio was added during the week in Herman Heep's No. 1 Vance, Block 5, Town Commons, in the extreme north end of the town lot district. This well is estimated as good for 1,500 bbls. of pipe line oil daily, flowing through tubing, from sand at 3,689-3,702 feet, and moved the 3,700-foot producing horizon approximately 1,000 feet to the east. Morgan Oil Corp.'s No. 5 City, Block 4, Town Commons, also on the north edge, was another completion, flowing 1,200 bbls. on chokes from a sand at 3,688-3,703 feet.

The 5,400-5,500-foot horizon area on the east and south of the field, added its fourth well in Morgan Oil Corp.'s No. 1 Tom Heard, center Block 3, flowing 500 bbls. on chokes from sand at 5,472-83 feet. Pressure of the well is 1,200 pounds. This producer is a north offset to Union Producing Co.'s No. 2 Mitchell, and the two are approximately a mile to the southeast of the deep sand discovery well.

At the close of the week, 12 tests, 9 in the 3,700-foot area and 3 in the 5,500-foot field, either were testing or were waiting on casing cement to set before drilling in. Twenty-four other rigs were running while two other tests have been located and derricks and rigs are going up. Daily average production of Reufgio now is above 40,000 bbls. for the first time and new production just added with expected production due in probably will send the figures well toward 45,000 bbls. daily unless some wells are choked in further.

After a run of mediocre wells for several weeks, Barbers Hill added another good producer in Mills Bennett Production Co.'s No. 3 J. F. Wilburn on the southeast side of the dome. This well was estimated as good for 2,800 bbls. daily on a half-inch choke from sandy shale at 5,239 feet. Two other deep sand wells were completed, including Sun Oil Co.'s No. 4 Chambers on the south side of the dome, flowing 340 bbls. at 5,375 feet, and Sinclair Oil & Gas Co.'s No. 4 J. Wilburn, southeast side, flowing an estimated 700 bbls. at 5,220 feet.

Pure Oil Co.'s No. 8 Yount Lee Oil Co. at Sweet Lake, Cameron Parish, is a small producer in sand at 5,642 feet. This well came in flowing 406 bbls. net oil in the first 10 hours on a three-eighths-inch choke. The oil was 28 per cent of the total fluid. This well originally was completed at 5,657 feet, coming in initially as a gasser. The hole was sidetracked and drilled back to its present level.

Early in the week, Gulf Production Co. brought in its No. 20 Moore, on the southeast side of the Orchard Dome, Fort Bend County, flowing 2,300 bbls. daily on a half-inch choke from sand at 3,966-80 feet. This is 300 feet west of No. 18, the only other successful completion on this flank. The latter, however, was only a small well and dropped off rapidly. The other production at Orchard has been on the north side where four producers have been completed although all these are not producing now.

A large potential producing area at Raccoon Bend, Austin County, was further indicated when Humble Oil & Refining Co. and Valley Oil Corp.'s No. 1 Duncan State Land, in the Brazos River bed, extended production 4,000 feet to the east and to the north. Although all production at Raccoon Bend has been held to a minimum, the area of the field has been marked by numerous long extensions, which make the field probably the largest on the coast with the exception of Refugio. Both are structure fields. Another small well, these operators' No. 8-B Deutrich, was completed at Raccoon Bend early in the week.

Other completions on the coast were South Texas Petroleum Co.'s No. 3 Lee and No. 14 Morris, on the south side of Humble, the former flowing 250 bbls. at 5,133 feet and the latter 350 bbls. at 5,205 feet; Calcasieu Oil Co.'s No. 1 Verdine, East Hackberry, 800 bbls., and Empire Gas & Fuel Co.'s No. 31 Barnsgrover at Hull, a dry gasser at 3,416 feet.

Humble Oil & Refining Co. has abandoned its second test on the Genoa torsion balance prospect, south of east of Houston. The test was quit at 5,241 feet in shale without proving the existence of a dome. This test, however, encountered a number of showings which proved failures. In a sand at 3,425 feet it made a small dry gas well but this did not hold up and made salt water.

The Texas Company's No. 3 State, on the Lake Pelto Dome of Terrebonne Parish, Louisiana, tested dry in sand at 4,278-4,389 feet and probably will be deepened. This dome, one of the seven turned to The Texas Company by the Louisiana Land & Exploration Co., so far has only one producing well. This company's No. 2 State, on the Caillou Island Dome, another of the seven, was deepened to 3,292 feet, bailed black sulphur water. This well was completed last January flowing 46 bbls. of pipe line oil an hour from sand at 3,229-43 feet but sanded up. On another of the seven domes, Lake Barre, The Texas Company's No. 3 State is in an oil sand at 3,836 feet. It has been standing with casing cemented.

Another of the coast's recent geophysical prospects is to be tested immediately. This is at Leesville, LaFourche Parish, in Township 21 south, Range 22 west, where location has been made.

Gulf Coast Production

Daily average production of the various pools during the past week follows:

TEXAS

Allen	95
Barbers Hill	23,872
Batson	1,170
Big Creek	3,107
Blue Ridge	2,002
Brenham	125
Boling	1,033
Clay Creek	1,645
Damon Mound	595
DeWalt	10,312
Fannett	1,237
Goose Creek	5,133
Hankamer	129
High Island	1,378
Hull	9,123
Humble	20,568
Jasper County	25
Lost Lake	773
Markham	315
Nash	290
North Dayton	982
Orange	2,479
Orchard	766
Pierce Junction	11,690
Port Neches	2,534
Raccoon eBnd	10,080
Refugio	40,833
Sheeks	1,395
Saratoga	1,005
Sour Lake	2,369
So. Liberty-So. Dayton	4,946
Spindletop	16,329
West Columbia	6,437
Total Southeast Texas	184,772
Week ending March 8	185,482
Decrease	710

SOUTH LOUISIANA

Anse La Butte	40
Bayou Blue	63
Bayou Bouillon	24
Black Bayou	115
Edgerly	521
Jennings	992
Hackberry	2,488
Lake Barre	215
Lake Pelto	247
Lockport	2,871
New Iberia	6
Port Barre	2,058
Sorrento	90
Starks	426
Sulphur	3,800
Sweet Lake	190
Vinton	3,924
Welsh	198
White Castle	380
Total South Louisiana	18,648
Week ending March 8	19,833
Decrease	1,355
Total Gulf Coast	203,420
Week ending March 8	205,315
Decrease	1,895

GULF COAST FIELDS AND WILDCATS

Week Ended March 15

BARBERS HILL—CHAMBERS COUNTY

Mills Bennett Production Co.'s No. 2 Barber, north side.. Drlg. lime rock 5,428 ft.
Mills Bennett Production Co.'s No. 7 Barrow, north .... Drlg. lime rock 5,428 ft.
Mills Bennett Production Co.'s No. 3 J. F. Wilburn, southeast ..... Comp. flowing 2,800 bbls. pipe line oil on one-half inch choke 5,239 ft.
Mills Bennett Production Co.'s No. 3 Collier ..... Drlg. sand and shale; cemented 8¼-in. casing at 5,230 ft.; total depth 5,277 ft.
Mills Bennett Co.'s No. 1 Gulf fee ..... Drlg. lime 4,190 ft.
Gulf Production Co.'s No. 2-A Wilburn, southeast ..... Drlg. hard sand and lime 4,987 ft.
Humphreys Corp.'s No. 1-F Barber, northwest ..... Drlg. hard lime 3,586 ft.
Humphreys Corp.'s No. 2-C Kirby ..... Drlg. sand 1,085 ft.
Humphreys Corp.'s No. 4-H Kirby (workover) ..... Rig up to work over.
Humphreys Corp.'s No. 1 McLean, east side ..... Cemented back to 5,100 ft.; to sidetrack.
Humphreys Corp.'s No. 1 Morgan ..... Cemented 8¼-in. casing 3,865 ft.
Humphreys Corp.'s No. 2 Scott ..... Rig.
McAlbert Oil Co.'s No. 1 Higgins ..... Drlg. shale and lime 4,449 ft.
Sinclair Oil & Gas Co.'s No. 3 McKinney fee ..... Drlg. shale and lime 1,676 ft.
Sinclair Oil & Gas Co.'s No. 4 Wilburn, southeast ..... Set 140 ft. screen 5,220 ft.; comp. flowing 700 bbls. on ½-in. choke.
Sinclair Oil & Gas Co.'s No. 5 Wilburn, southeast ..... Drlg. lime 4,778 ft.
Sun Oil Co.'s No. 4 McKinney fee ..... Drlg. sand rock 2,118 ft.
Sun Oil Co.'s No. 4 Wilburn, southeast ..... Drlg. hard sand; set screen 5,297 ft.
Sun Oil Co.'s No. 3 J. Wilburn, southeast ..... Drlg. shale 5,239 ft.
Sun Oil Co.'s No. 4 J. Wilburn, southeast ..... Drlg. oil sand and shale 5,160 ft.

(Continued on Page 126)

What — Happens To Your Crude When the Sun Shines?

is it protected with

B.S.&B. Perfection *Vapor Pressure* TANKS ?

Have you ever realized the havoc the sunshine plays on your crude? It acts like the fire under a still. The heat causes an expansion of the crude and its volatile vapors quickly pass into the atmosphere—to be lost forever unless retained within the tanks.

Then when the sun goes down, and the tank cools, it contracts and there is created a vacuum.

If your tank is not absolutely vapor pressure tight you lose a high percentage of those valuable vapors which lowers the specific gravity—consequently the market price.

Here is what the Bureau of Mines, of the U. S. Dept. of Commerce, has to say about evaporation loss due to the sun's rays:

"The breathing losses are caused by atmospheric variations. Probably the greatest are the changes in atmospheric temperature which cause changes in temperature of the vapors in the tank. During the day, as the temperature increases, the gasoline-saturated vapors in the tank expand and are forced out into the atmosphere. At night the vapors are cooled and contract, drawing into the tank fresh air, which becomes saturated with gasoline vapor, and is forced out of the tank during the following day. In addition to the maximum and minimum temperature variations there are many smaller variations throughout a twenty-four hour period caused by showers, clouds, winds and other atmospheric conditions which likewise cause the tank to breathe." Serial No. 2834, October, 1927.

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The B.S.&B. Perfection Vapor Pressure Tank is designed to retain properly under sixteen ounces the light fractions of the crude. Let it be the watchdog of *your* crude.

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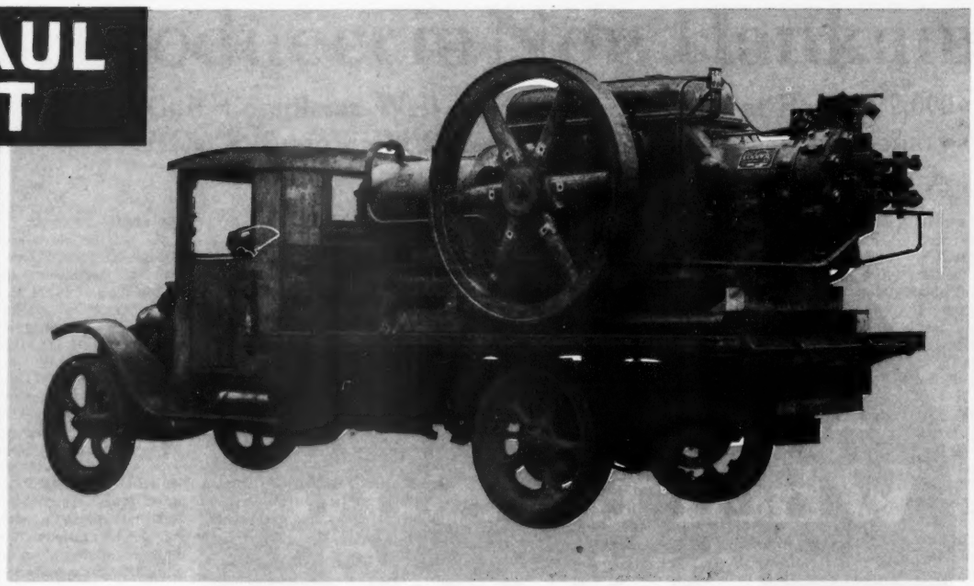
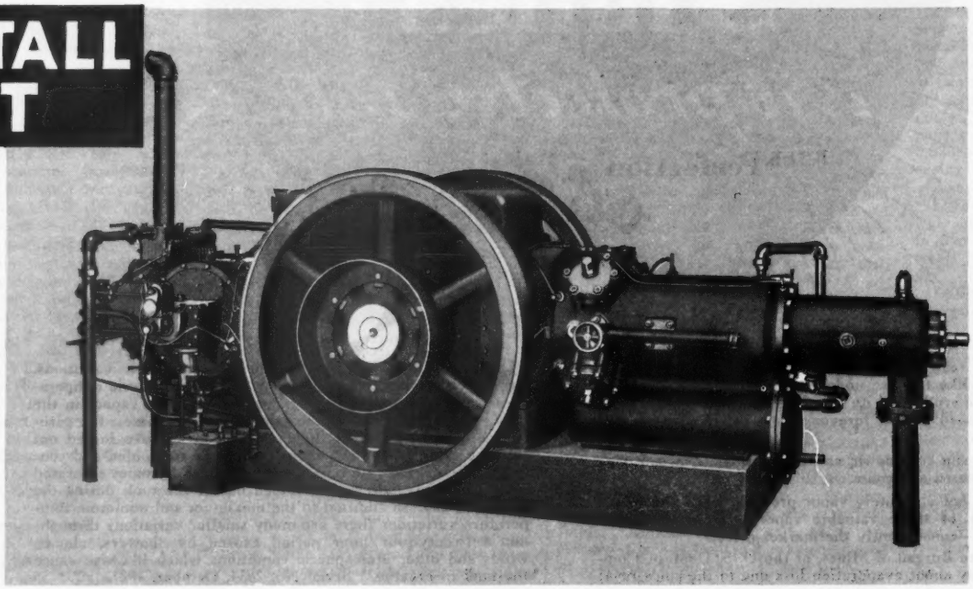


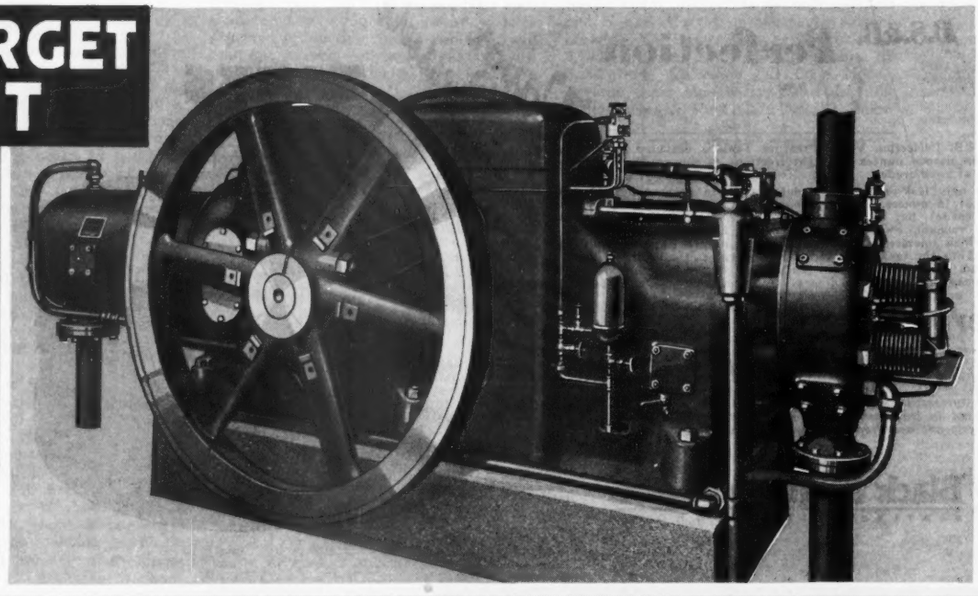
Cooper-Bessemer Type-16 (50-60 B.H.P.) engine compressor unit is portable because of its compactness and comparatively low weight. It is readily transported from location to location by truck.

INSTALL IT



Cooper-Bessemer Type-16 is ready for operation as you receive it. It comes completely assembled and requires no lining up. Because of its simple foundation and the fact that mounting requires only a few anchor bolts, the unit can be easily installed anywhere. (This view shows valve gear side with two stage tandem compressors.)

FORGET IT



Cooper-Bessemer Type-16 is designed for semi-automatic operation when equipped with several simple safety devices that shut it down when water pressure decreases, temperature increases or lubricating oil pressure decreases. Thus only a few minutes' attention is required each day. (This view shows oil filter side and single stage compressor.)

COOPER-BESSEMER

TYPE 16

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Order your Type-16 with a single or two-stage compressor cylinder for regular or semi-automatic operation—as a gas or Diesel engine. You can always convert it the other way, easily and inexpensively, right in the field. Rating is 50-60 B. H. P., depending upon the speed. *Write for new Bulletin* — TYPE-16.

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THE only side-door slip-grip casing elevator made...embodying the use of slips to insure holding the heaviest load.

Four slips provide the positive grip . . . without crushing the pipe.

This positive grip is backed by ten times the strength required to safely handle the longest, heaviest string of casing ever set.

Extreme simplicity with correct design, and perfect balance make it extremely fast, and easy to handle.

BJ Weldless Elevator Links used with this elevator make a perfect combination and further insure fast, easy and safe handling.

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Deep Wildcat Test for Permian Basin

Several New Tests Announced for Pecos Valley Pool. First Failure in Penn Pool. Second Well in Masterson Area

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Mar. 17.—Another deep wildcat test for the Permian Basin, several tests announced for the Pecos Valley Pool, Pecos County, and the first failure for the Penn Pool, Ector County, were the highlights of West Texas for the week, although the Masterson area in Pecos County gained its second well, which came in for a better well than the discovery well but was drilled into sulphur water before completing it.

The last mentioned test is Atlantic Oil Producing Co.'s No. 1 Shearer, 330 feet from the northwest and southwest lines of Section 107, Block 10, H.&G.N. Survey, a southeast offset to the discovery well of Cranfill & Reynolds which is averaging around 30 bbls. per day on the pump. The Shearer well topped the pay at 1,438 feet and was first shut down at 1,441 feet, making 125 bbls. of oil per day, but when the well was deepened it encountered sulphur water at 1,475 feet, and will now be plugged back. Total depth of the hole is 1,488 feet. This will make the second well of the pool, one test in Section 105 having been abandoned as a dry hole.

Deep Test in Tom Green

Another deep test is reported for southern Tom Green County southeast of the town of Christoval, the Cosden Oil Co. having taken a block of approximately 14,000 acres consisting of Sections 1, 2, 3, 4, 5, 6, 11, 13, 14, 15, 18, 19, 20, 21, 23, 24, 25, 27 and 28, Block 24, H.&T.C. Survey, and all of the M. Kuykendall Survey No. 7, the J. M. Swisher Survey No. 79½, The east 53 acres of the E. Smith Survey No. 81, the eastern part of the E. A. Magill Survey No. 79, the eastern part of the J. F. Grout Survey No. 2 and the T. M. McClure Survey No. 1,827½. Three locations for shallow tests are to be located in the Magill Survey, in the J. S. Grant Survey and in the McClure Survey, these shallow tests to penetrate to the shallow sands which have yielded good showings of oil in previous tests drilled in this part of the county. The deep test is reported for the NE of Section 20, Block 24, H.&T.C. Survey.

The other deep test in this part of Tom Green County is the Phillips Petroleum Co.'s No. 1 Gulden, in the NW of Section 77, James Webb Survey, north of the town of Christoval. This test is on a 19,000-acre block, and reported to go at least 5,000 feet unless oil in paying quantities is found above that depth, and the Cosden test will go to 5,000 feet unless oil is found above that depth. W. J. Wharton will be in charge of drilling operations.

Penn Pool's First Duster

The Penn Pool's first duster was abandoned at a total depth of 3,843 feet this week by the Llano Oil Co. on the Hogan Ranch. The test was located in the northwest corner of Section 7, Block 44, Township 3s, T.&P. Survey, approximately a mile east of production in the pool. Elevation of the test is 2,914 feet, top of the lime is 3,349 feet. It is a defining test to the southwest of the field where there are 20 other wells drilling and 6 producing, the sixth well having been completed this week by the Landreth Production Corp. on its "T" lease in the NE of Section 3, Block 35. Top of the pay of this new well was struck at 3,588 feet, with an increase registered from 3,635-55 feet in soft lime, and the bottom of the hole standing at 3,663 feet. In nine hours ending at 7 a. m., March 17, the well flowed 320 bbls. This well is the company's No. 2-T.

The Simms Oil Co. purchased the Landreth Production Corp.'s interest in "R" lease in Section 1, Block 35, and the well, which has been carried as Landreth Production Corp.'s No. 1-R University, is now reported in the drilling report as Simms Oil Co. and others' No. 1 University. It is located 440 feet from the south and east lines of the section.

Black & Dittman's No. 1 Pecos Valley Oil Co., the best well yet drilled in the Pecos Valley Pool in northern Pecos County, came in producing better than 250 bbls. daily, but recently has slumped off considerably, the daily average now running around 175 bbls. This well is in Section 34, Block 3, H.&T.C. Survey, and has been the principal reason for several nearby tests being located, making this area one of the most interesting in Pecos County and West Texas.

R. E. Moore's No. 1 Arnold, in the SW of Section 18, H.&T.C. Survey, Pecos County, encountered another small showing of gas at 1,780 feet and a slight show of oil at 1,850 feet, the oil testing 37 gravity.

May Reduce Yates Pool

It now begins to appear as if the Yates Pool may be reduced to the once reported amount of 100,000 bbls. due to Mid-Kansas Oil & Gas Co. and the Transcontinental Oil Co. running oil to storage, and the Humble Oil & Refining Co.'s requirements being reduced due to its inauguration of the six-day refinery and production period instead of seven-day operation period.

The daily allowance of the pool is now 130,000 bbls., this allowance based on the market outlet, and rather than see the crude go into storage the Railroad Commission will probably be disposed to grant a reduction in production as requested by the Advisory Committee, for the commission regards the practice of running crude to storage as constituting a form of waste, and as opposed to conservation, and therefore will no doubt desire a cut in production.

Early in February the Advisory Committee decided to petition the Railroad Commission to reduce the allowable to 100,000 bbls. daily, but later changed its mind, and the allowable remained at 130,000 bbls. Now it seems as if a cut is inevitable.

A proration meeting pertaining to the Howard-Glasscock Pools will be held at the Baker Hotel, Dallas, on Saturday, March 22, by the Railroad Commission. The present proration period expires March 31 and will no doubt be extended.

The Interstate Commerce Commission ordered the reopening of the proposal of the Yates & West Texas Railway, which it recently rejected, to construct a line from Rankin, Tex., on the Kansas City, Mexico & Orient Railway down to the Yates Pool, approximately 25 miles south. Further evidence from Yates & West Texas men will be introduced. The Orient railway, a part of the Santa Fe railroad, is objecting to the road.

Reeves County Test

Slack & Fink's No. 1 Brooks, Section 16, Block 59, Public School Lands Survey, Reeves County, in the center of a dry hole area, encountered an oil sand at 1,820-27 feet this week, the hole filling 400 feet with fluid, gravity of the oil testing 34. It is now shut down at the latter depth, and will be tested immediately. Other tests in this area have had good-looking showings of oil, but so far none of them has made a producer, consequently this showing has not aroused much interest. Elevation of the test is 3,116 feet.

P. H. Williams' No. 1 Ash, the deepest test in West Texas outside of the Reagan County Pool, is drilling at 7,990 feet in black lime. It had a good showing of gas at 7,931 feet. This test is in Section 20 of the Washington County School Lands, Irion County.

W. H. Clark's No. 1 Newman, Section 52, Block 15, T.&P. Survey, north of the Tiner Pool in Jones County, swabbed 6 bbls. of oil and the same amount of water on a swab test of 24 hours. Total depth of the test is 2,533 feet, and it is now questionable as to just what the owners will do with it.

Upton County Test

Texas Pacific Coal & Oil Co.'s No. 1 Belcher, Section 10, Block 4½, G.C.& S.F. Survey, Upton County, the most interesting test of this area, is drilling anhydrite at 2,730 feet. It topped the salt at 1,310 feet and went out of the salt at 2,435 feet. Elevation of the test is 2,684 feet.

In Gaines County the Humble Oil & Refining Co. is moving in material for its test in the NW cor. of Section 23, Block A-27, 7 miles east of the Louisiana Oil & Refining Co. and others' No. 1 Ralph, which was abandoned last week after encountering several oils and gas shows. The Humble test is on a block whose leases will soon expire, and as the Louisiana test found such encouraging showings, this second test in the area will be closely watched for similar showings.

WEST TEXAS PRODUCTION

(Week ending March 15, 1930)

County—	Wells	Prod.
Andrews	1	170
Crane	335	37,507
Crockett	48	1,790
Fisher	7	800
Ector	8	1,280
Garza	5	45
Glasscock and Howard	494	38,599
Jones	73	1,375
Loving	20	1,290
Mitchell	143	2,330
Pecos	422	142,049
Reagan	253	16,931
Runnels	3	15
Scurry	5	12
Upton	254	9,035
Ward	24	1,575
Winkler	605	90,735
Total production this week..	2,700	345,538
Total production last week..	2,698	342,424
Difference	2	3,114

WEST TEXAS COMPLETIONS

Week ending March 15

Brewster County

E. W. Bateman and others' No. 2 Neville, located 2,000 feet south and west of Section 62, Block 13, G.H.&S.F. R.R. Survey, was dry and abandoned at a total depth of 3,006 feet.

Crane County

Simms and Atlantic Oil Producing Co.'s No. 11 University, located 2,130 feet from north, 990 feet from east of Section 39, Block 30, University, was drilled to a total depth of 3,032 feet, topped the pay at 2,906 feet, was shot with 120 quarts at 2,906-60 feet and with 100 quarts at 2,929-80 feet and had an initial production of 150 bbls. daily.

Glasscock County

Amerada Petroleum Corp.'s No. 2 Coffee was drilled to a total depth of 2,270 feet, topped the pay at 2,186-90 feet, increased at 2,265-70 feet and pumped 124 bbls. first hour and 140 bbls. the second hour. Luna Oil Co.'s No. 1 Edwards was drilled to a total depth of 2,491 feet, plugged back to 2,295 feet, topped the pay at 2,276-95 feet and pumped 50 bbls. oil, 3 per cent water. Schermerhorn Oil Co.'s No. 3 Coffee was drilled to a total depth of 2,276 feet, topped the pay at 2,195-2,205 feet and pumped 50 bbls. hourly.

Gaines County

Louisiana Oil & Refining Co.'s No. 1 Ralph, located Section 7, Block A-28, Public School Land, was dry and abandoned at 4,750 feet after finding sulphur water at 4,748-50 feet.

Howard County

Laurel & Cosden's No. 12 Dora Roberts was recompleted at 2,705 feet, plugged back to 2,690 feet, shot with 30 quarts at 2,508-2,690 feet and pumped 336 bbls. The location was abandoned on California Co.'s No. 6 Roberts, Lease No. 1. California Co.'s No. 10 Roberts, Lease No. 2, was drilled to a total depth of 1,880 feet, topped the pay at 1,839-60 feet, was shot with 50 quarts at 1,838-63 feet and had an initial production of 42 bbls.

Fisher County

Magnolia Petroleum Co.'s No. 1 Lee,

(Continued on Page 113)

WILDCAT OPERATIONS IN WEST TEXAS

Week Ended March 17

Company, farm and location—	Remarks—
ANDREWS COUNTY	
Deep Rock Oil Co. et al's No. 1 Mathis, 990 ft. from S and W. Sec. 4, Blk. A-46, Public School Land	Drlg. 760 ft.
Deep Rock Oil Co.'s No. 1 Miles, 990 ft. S, 1,650 ft. E of NW cor. Sec. 22, Blk. A-46, School Land	Running 12½-in. casing 765 ft.
Deep Rock Oil Co.'s No. 1 Ogden, 2,310 ft. E, 330 ft. S, Sec. 6, Blk. A-46, Public School Land	Top pay 4,345 ft.; top lime 4,050 ft.; averaging 200 bbls. per day; total depth 4,428 ft.; est. 200 ft. water in hole 4,414-28 ft.
Fuhrman Pet. Corp.'s No. 1 Ford, 440 ft. from S and 2,200 ft. from W of Sec. 16, Blk. A-43, Public School Land	Rigging up.
Deep Rock Oil Co. et al's No. 1 King, 330 ft. from N and 2,310 ft. from E. Sec. 11, School Blk. A-46	Drlg. 980 ft., red rock.
BORDEN COUNTY	
Moncrief et al's No. 1 Munger, 1,980 ft. from N and E, Sec. 15, Blk. 31, Twp. 4-N, T.&P.R.R. Sur.	Drlg. 3,195 ft.
Phillips et al's No. 1 Goode, 330 ft. N and E of SW cor. SE of Sec. 46, Blk. 33, Twp. 4n, T.&P.R.R. Sur.	Cleaning out 495 ft.
Teas & Wheeler's No. 1 Long, 1,320 ft. N and E of Sec. 27, Blk. 30, T.&P. Sur.	Top salt 1,080 ft.; shut down 2,540 ft.
BREWSTER COUNTY	
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor., Sec. 45, Blk. G-15, G.C.&S.F. Sur.	Shut down 1,935 ft.
Forrest Oil Co.'s No. 1 Skinner, C SW SE, Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,250 ft.; hole full water 1,135-85 ft.
Trans-Pecos O. & G. Co.'s No. 1 Jones, 920 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.&S.F. R.R. Sur.	Drlg. 1,990 ft.; show oil 1,830 ft.
Van McPhail's No. 1 McIntyre, SE cor., Sec. 59, Blk. 352, 7 mi. S of Alpine	Shut down 1,740 ft.

Good Extension Well in Gray County

Humble Completion Estimated Good for 7,000 Bbls. With 20,000,000 Feet of Gas. Activity in Nocona Pool

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Mar. 17.—A north extension well of large proportions in the Finley-Brown Pool, Gray County, was the main talk of the Panhandle district for the week. This well belongs to the Humble Oil & Refining Co. and is in the SE of Section 36, Block 3, I.& G.N. Survey. The well, which is the company's No. 1 Combs-Worley, flowed 300 bbls. the first hour, March 9, but was pinched to 50 bbls. per hour shortly thereafter, and was estimated good for at least 7,000 bbls. per day with an estimated 20,000,000 feet of gas. Top of the granite wash pay was found at 2,827-46 feet, and the hole bottomed at the latter depth. Late field reports carry it as pinched to 50 bbls. per hour.

There is much activity around Bridwell Oil Co.'s No. 1 Dennis in the Finis Robertson Survey of the Nocona Pool, Montague County, since this well came in extending the field, and the Arco Oil Co. is one of the companies taking action in the area. It is now rigging up a rotary derrick for its No. 1-E Salmon, 300 feet north of the Bridwell well. O. V. Beck and others have made a location to the south of the Bridwell discovery, and the Bridwell and Continental Oil Co. have made a location for No. 1 J. H. Brown, 150 feet from the south and east of the south 100 acres of the J. Graves Survey. It is a semiwildcat in the northern part of the Nocona Pool.

The semiwildcat test of T. F. Hunter on the H. L. Dennis farm in the A. Pope Survey, Cooke County, tested sand from 1,452-55 feet and showed 2 bbls. of oil and no water. It was abandoned this week at 1,751 feet after picking up no shows below the one at 1,452 feet.

Gray County Gains

Gray County production gained 4,404 bbls. per day this week over the previous week, and the operators of Gray County will meet at Pampa on March 21 to discuss proration with the possible decision of asking the Railroad Commission to intercede and take this area under its supervision. Heretofore the proration in Gray County has been carried on under a voluntary arrangement, but this has been found to be rather unsuccessful, and the flush production pools have not been held in check as many of the operators would like to have them prorated.

A sale of the Goldelline Oil Corp.'s interests in Hutchinson County to Harry Stekoll of Tulsa has been reported, the properties consisting of 960 acres and eight wells with a daily average of 175 bbls. production.

The Magnolia Petroleum Co. has completed a 30-mile survey for a 6-inch line, having a capacity of 15,000 bbls. per day, from the Atlantic Oil Producing Co.'s lease in the Zacaquiesta Pool, Wilbarger County, to the Magnolia's main trunk line in Wichita County. This will give the Wilbarger County fields their fifth line serving them. The four other lines now serving the pools are the Humble, Sinclair, Texas and Waggoner's new line to Wichita Falls.

The Pure-Prairie Pipe Line Co. has completed 10 miles of 2-inch line from its pumping station in the Graham Pool, Young County, to the Orth Pool in northern Young County, and ran a daily average of 624 bbls. for the month of February. These companies have also completed 10 miles of 4-inch line from the Woodson area in Throckmorton County to the southwestern part of the county where there is shallow production. A daily average of 202 bbls. was run in February through this new line. It connected with 18 shallow leases which have been shut in for pipe line connections.

Alworth's No. 1 Moore, located in Section 7, Block 6, T.&P. Survey, Stephens County, created considerable interest when it topped a gas sand at 1,185 feet and made an estimated 2,750,000 feet of gas. Total depth of the discovery is 1,192 feet.

Shackelford Semiwildcat

E. J. Stumps' No. 1 Brewster, the new semiwildcat discovery in Section 48, Blind Asylum Lands, southeastern Shackelford County, has been flowing a daily average of 225 bbls. of oil during the week, and the well has caused offset acreage to be in great demand, the north offset 80 acres changing hands for the reported sum of $80,000 cash. The oil sand in this well was encountered at 2,105 feet.

The Rancho Oil Co. of Fort Worth purchased the Melat Oil Co.'s holdings in Wilbarger County, which consisted of 200 acres with nine producing wells having a daily average of 153 bbls. This land is in Section 10, Block 3, H.&T.C. Survey.

Several gas well tests are to be drilled in and around the Mahala Duncan Survey No. 55 and the P. McGee Survey No. 649, NE of Grosvenor in Brown County. The Oklahoma Natural Gas Co. will lay a line into the pool if 20,000,000 feet of gas is produced.

RANGER COMPLETIONS
Week Ending March 15

Brown County

Mac Anderson's No. 4 Trammell was dry and abandoned at a total depth of 1,550 feet. McGahhey and others' No. 1 Scott location was abandoned. E. L. Smith Oil Co.'s No. 20 George was shot with 8 quarts at 1,317-38 feet and had an initial production of 25 bbls. E. L. Smith Oil Co.'s No. 1 Holt was dry and abandoned at a total depth of 1,585 feet. Van Bibber and others' No. 1 Evans was temporarily abandoned at a total depth of 2,280 feet. Mac Andersor's No. 1 Fuller location was abandoned. Baker Brothers' No. 1 Hall was shot with 5 quarts at 516-23 feet and had an initial production of 6 bbls. on pump.

Erath County

Associated Production Co.'s No. 3 Carey was drilled to a total depth of 3,390 feet, was plugged back to 3,300 feet, shot with 10 and 30 quarts at 3,280-3,300 feet and had an initial production of 320,000 feet of gas.

Eastland County

Dorothy Oil Co.'s No. 1 Hargus was dry and abandoned at a total depth of 1,548 feet. Hoffman & Page's No. 2 Coon was shot with 15 quarts at 1,253-68 feet and had an initial production of 8 bbls. Mays and others' No. 1 Brashear was dry and abandoned at a total depth of 1,650 feet. Southern Oil & Purchasing Co.'s No. 2 Webb was dry and abandoned at 1,374 feet. Teatsorth and others' No. 3 Harbin had an initial production of 8 bbls. at 1,527-40 feet. Texas Pacific Coal & Oil Co.'s No. 4 Durocher had an initial production of 10 bbls. after having been shot with 40 quarts at 2,986-99 feet. Lone Star Gas Co.'s No. 5 Storm had an initial production of 25 bbls. oil and 75,000 feet of gas at a total depth of 3,536-57 feet.

Coleman County

Magnolia Petroleum Co.'s No. 12 Morris was dry and abandoned at 2,558 feet. Roth & Faurot's No. 5 Stevens was shot with 20 quarts at 1,053-67 feet and had an initial production of 8 bbls. Arcadia Refining Co.'s No. 1 Switzer was dry and abandoned at a total depth of 1,546 feet. Atlantic Oil Producing Co.'s No. 2-B Overall had an initial production of 225 bbls. after having been shot with 14 quarts at a depth of 2,186-2,210 feet. Kidney Kamon and Western Exploration Co.'s No. 3 Pfluger was dry and abandoned at a total depth of 1,530 feet. Smith & Cheney's No. 1 Pauley was dry and abandoned at 2,455 feet. Taylor-Link Oil Co.'s No. 2 Stewardson had an initial production of 120 bbls. at 1,446-56 feet. J. W. Wilmott's No. 1 Baker was dry and abandoned at 1,862 feet.

NORTH TEXAS PRODUCTION
Week Ending March 15
Panhandle District

	Prod.
Carson County	9,149
Hutchinson County	23,318
Gray County	57,829
Moore County	581
Potter County	49
Wheeler County	582
Total production this week	91,508
Total production last week	86,995
Increase	4,513

Wichita District

Archer County	17,694
Baylor County	600
Clay County	776
Cooke County	4,492
Foard County	236
Jack County	4,349
Haskell County	66
Montague County	6,405
Throckmorton County	870
Wilbarger County	24,072
Young County	9,670
Wichita County	25,620
Total production this week	94,850
Total production last week	94,943
Decrease	93

Ranger District

Brown County	7,946
Callahan County	3,707
Coleman County	4,960
Comanche County	449
Palo Pinto County	730
Eastland County	5,262
Shackelford County	6,500
Stephens County	7,749
Total production this week	37,303
Total production last week	36,058
Increase	1,245
Grand total production this week	223,661
Grand total production last week	217,996
Increase	5,665

Shackelford County

C. F. Gibson's No. 1 Nail was dry and abandoned at 1,474 feet. Morton and others' No. 1 Davis was dry and abandoned at 1,187 feet.

Stephens County

Adams, Chestnut & Smith's No. 1 Tucker was drilled to a total depth of 4,178 feet, plugged back to 3,660 feet and pumped 20 bbls. oil from 3,655-60 feet. Clover Leaf Mining Co.'s No. 1

(Continued on Page 76)

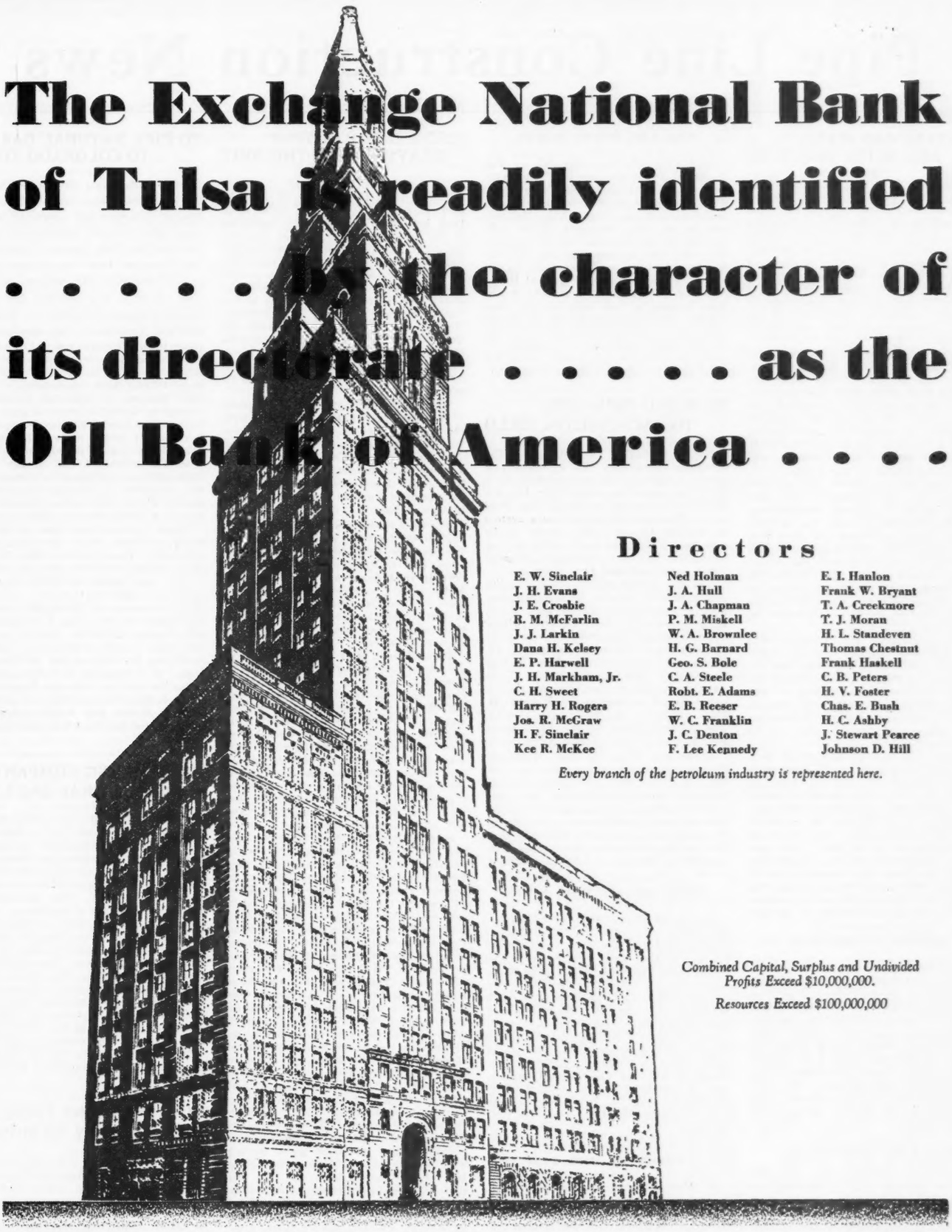
WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending March 17

Company, well, farm, name, section and block—	Remarks—
CARSON COUNTY	
Champlin Ref. Co.'s No. 5 McConnell, 990 ft. S line, 330 ft. W line, N 120 ac., NW, Sec. 67, Blk. 4, I.&G.N. Sur.	Drlg. 1,380 ft.
Danciger O. & R. Co.'s No. 1 Block, 330 ft. N and E lines, Sec. 112, Blk. 4, I.&G.N. Sur.	S.D. 2,985 ft.
Delmar Oil Co.'s No. 5 Noel, 330 ft. S and W, NE cor. W½ SE, Sec. 198, Blk. 3. I.&G.N. Sur.	S.G. 3,000-10 ft.; S. D. 3,131 ft.
Cockrell-McIlroy Oil Co.'s No. 1 Eller, 330 ft. S and W, NE cor. NW, Sec. 200, Blk. 3, I.&G.N. Sur.	Drlg. 1,200 ft.
Cockrell-McIlroy Oil Co.'s No. 1 Simms, 330 ft. S and E, E 140 ac., N 160 ac., S 320 ac., Sec. 11, Blk. 7, I.&G.N. Sur.	Rigging up and S.D.
Empire G. & F. Co.'s No. 1 Bennett, C SE. Sec. 6, Blk. B-5, B.&B.R.R. Sur.	Rig.
Empire G. & F. Co.'s No. 1 Thorp, C NW, Sec. 26, Blk. T, A.B.&M. Sur.	U.R. 6-in. csg. 3,446 ft; drlg. 3,-680 ft.
Empire G. & F. Co.'s No. 2 Deahl, C NW, Sec. 25, Blk. Y-2, G.B.&C.N.G.R.R. Sur.	Rig.
Gulf Prod. Co.'s No. 1 Burnett-C, C SE SE, Sec. 35, Blk. 4, I.&G.N.R.R. Sur.	Drlg. 2,750 ft.; hard granite; 42,-000,000 ft. gas.
H.A.M. Oil Co.'s No. 1 Cooper, 330 ft. S and W, E½ NE, Sec. 5, Blk. 9, H.&G.N.R.R. Sur.	T.D. 3,105 ft.; T.D. 3,102 ft.; 2,000 ft. oil in hole.
McClintock et als' No. 2 Garner, 330 ft. W and S of E 55 ac. of N 80 ac., NW, Sec. 105, Blk. 4, I.&G. N.R.R. Sur.	Rigging up and S.D.
Osborne et als' No. 3 Percival, 330 ft. N and W, SE cor. E½ NE, Sec. 199, Blk. 3, I.&G.N.R.R. Sur.	Drlg. 2,010 ft.
Pansota Oil Co.'s No. 1 Block, 330 ft. S and W, NE cor. SW, Sec. 111, Blk. 4, I.&G.N.R.R. Sur.	S.D. 3,060 ft.
Phillips Pet. Co.'s No. 1-A Garner, 430 ft. S line, 330 ft. W, Sec. 114, Blk. 4, I.&G.N. Sur.	Cleaning out 520 ft.
Phillips Pet. Co.'s No. 1 Pickens, 990 ft. from E line, 330 ft. N line, NE cor., Sec. 31, Blk. 7, I.&G.N.R.R. Survey	Location.
Prairie O. & G Co.'s No. 2 Nail, 330 ft. N and W lines, N½ E½ SE, Sec. 198, Blk. 3, I.&G.N. Sur.	10,000,000 ft. gas 2,830-2,985 ft.; S.D. 3,123 ft.
Ryan Cons. Oil Co.'s No. 7 Block, 330 ft. N, 990 ft. W, SE cor. NE, Sec. 111, Blk. 4, I.&G.N.R.R. Sur.	S.D. 3,062 ft.
Shamrock Oil & Gas Co.'s No. 1 Thompson, 330 ft. from S and W lines of E 80 acres of NE, Sec. 5, Blk. 7, I.&G.N. Survey	Location.
Shell Pet. Corp.'s No. 1 Percival, 330 ft. N and E, SE. Sec. 199, Blk. 3, I.&G.N. Sur.	S.D. 600 ft.
Skelly Oil Co.'s No. 19 Schafer, 330 ft. N, 990 ft. E, SW cor. NE, Sec. 198, Blk. 3, I.&G.N. Sur.	6,000,000 ft. gas 2,895-2,970 ft.; S. D 3,100 ft. by agreement.
Skelly Oil Co.'s No. 20 Schafer, 330 ft. N, 990 ft. W, SE cor. N½, Sec. 198, Blk. 3, I.&G.N. Sur.	S.D. 3,090 ft. by agreement.
L. W. Timm's No. 2 Garnet (White Deer), 330 ft. S and W, NE cor., Sec. 104, Blk. 4, I.&G.N.R.R. Sur.	S.D. 1,008 ft.
CASTRO COUNTY	
Colorado O. & R. Co.'s No. 1 Slemmons, SW cor., Sec. 73, Blk. M-17, B.S.&F. Sur.	Rig blown down.
Mystery Oil Co.'s No. 1 J. I. Crum, SE cor. NE, Sec. 333, Blk. M-6, S.K.&K. Sur.	S.D. 510 ft. for csg.
CHILDRESS COUNTY	
Continental Oil Co. and Sun Oil Co.'s No. 1 Johnson, 660 ft. NE, Sec. 580, Blk. H, W.&N.W. Sur.	Fishing 1,170 ft.
C. L. Sloane et als' No. 1 B. P. Smith, Sec. 49, F. P. Knott lands	T.D. 5,000 ft; C.O.
COCHRAN COUNTY	
Westbrook et als' No. 1 Slaughter, 400 ft. S and E, Labour 67, League 118, Knox Co. School lands	T.D. 5,036 ft.
COLLINGSWORTH COUNTY	
Sharp Bros.' No. 1 Aldons, 410 ft. N, 330 ft. E, Sec. 96, Blk. 16, H.&G.N.R.R. Sur.	Run 15½-in. csg.; Drlg. 860 ft.

(Continued on Page 116)

The Exchange National Bank of Tulsa is readily identified . . . . . by the character of its directorate . . . . . as the Oil Bank of America . . . .



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Pipe Line Construction News

MONTANA GAS WARS ARE BEING ADJUSTED

CASPER, Wyo., Mar. 15.—Cut Bank, Mont., about 20 miles west of Shelby, will have a gas supply by pipe line from the Yunck gas well about 12 miles north of that point. The line is to be laid as soon as the frost is out of the ground.

All the cities and towns in Montana served by gas lines received a jolt last week when the Montana Public Service Commission ruled that gas companies did not have to pay the franchise tax imposed in nearly every town and city of the State.

The ruling hit the city of Great Falls to the tune of $6,000 to $10,000 annually. Since 1926, Great Falls has collected that much from the gas companies serving the city and called it a franchise tax. Havre recently instituted proceedings to compel the gas company to pay a franchise tax of around $7,000. It is expected the municipalities will take up the matter to the courts.

The gas war at Havre between two opposing interests appears to have been settled by one company withdrawing. The Montana-Dakota Gas Co. notified the city council of Havre last week that a 5 to 20 per cent reduction in the price of gas to consumers of both Havre and Chinook would be effective March 26. At the same time, the Perkins-Jones interests announced they had withdrawn their application for a gas franchise for Havre and Chinook.

It is understood the Montana Gas Corp., owner of the gas line that delivers gas to the Montana-Dakota Gas Co. at Havre and Chinook, has reduced the cost of its gas-carrying charge to the Montana-Dakota company and this reduction is also included in the lowering of the charges to the consumers at the two points.

Another gas war at Malta has been closed through a merger. The Montana Utilities Service Co. and the Bowdoin Utilities Gas Co., the latter a subsidiary of the Montana-Dakota interests, have merged at Malta and the gas from the wells owned by the two companies will be marketed by one firm. The competition between the two companies brought the rate for domestic to 15 cents per 1,000 feet. Twenty producing wells on the Bowdoin Dome in northern Montana will be affected by the merger.

MOVING TO HOUSTON

HOUSTON, Tex., Mar. 15.—Following the recent purchase of the Morgan Oil Corp. and the Gulf Coast Pipe Line Co. by the United Gas Co. at Houston, William F. Morgan, head of the two former companies, and his complete force are transferring their offices from San Antonio to Houston where they will be assimilated with those of the United Gas Co. in the Esperson Building. Mr. Morgan will continue to have charge of the operations of the former Morgan Oil Corp. at Refugio.

GAS FOR VEGREVILLE

CHATHAM, Ontario, Mar. 15.—The Vegreville Natural Gas Co. has been organized to supply natural gas to the town of Vegreville, Alberta. A franchise covering drilling operations on the municipal gas reserve and the supplying of Vegreville with gas was recently granted to P. W. Abbott, J. Church, Arthur K. Whiston and associates. Drilling will be done on a natural gas reserve of 10 square miles set aside by the federal government for the town; and as soon as organization is completed drilling operations will be commenced. It is planned to deliver gas to Vegreville before the winter of 1931.

GAS FOR FORTY TOWNS

ABBEVILLE, La., Mar. 17. — Enthused at the acceptance of the proposition of the Arkansas Gas Co. at New Iberia, covering the 40 towns on the proposed natural gas route, D. L. McPherson of this city, chairman of the subcommittee who investigated the proposition submitted by that company, and the Southern Gas Co., said acceptance by the general committee at a meeting at Crowley, was a foregone conclusion as it had been favored at the Lake Charles conference. The company stated it would place crews and engineers in each of the towns, and would start operations at once. Abbeville, it was added, would receive natural gas in eight months' time.

TO BUILD PIPE LINE TO ZACAQUIESTA FIELD

FORT WORTH, Tex., Mar. 15.—The Magnolia Petroleum Co. is opening a right of way for the construction of a crude oil pipe line, connecting the Atlantic Co.'s lease in the Zacaquiesta Pool to the Magnolia company's main system in Wichita County. The survey of the new line, which will be the fifth serving producers of the Wilbarger County fields, was completed two weeks ago.

The new carrier will be about 30 miles long and will probably be a 6-inch line, with a capacity of 15,000 bbls. daily. It is expected to be completed within three weeks and will probably carry some oil from other leases adjoining the Atlantic. The line will run from Section 31, Block 5, H.&T.C. Survey, in Wichita County, where the Magnolia has a pump station, to Section 50, Block 2, H. &T.C. Survey, in Wilbarger County. The Atlantic lease in the Zacaquiesta Pool is part of the original Sigler lease.

Other pipe lines serving Wilbarger County producers at present are the Humble, Texas, Sinclair and the recently completed Waggoner Refinery line. Vernon oil operators expect no relief from the enforced proration as a result of the completion of the new Magnolia line. The production of this county has been curtailed to 50 per cent by the carriers.

PURE OIL CO. PIPE LINE

The A. O. Smith Corp. of Milwaukee announces an order of 192 miles of Smithwelded line pipe from the Pure Oil Co. of Chicago. This order covers a line to run from Van County, Texas, to Beaumont. The A. O. Smith Corp. will also do the field welding in connection with the running of the line. Production will start immediately with shipments at the rate of 4 miles a day. The A. O. Smith Corp. is also announcing the receipts of still orders as follows: Eight vessels, 10 by 45 feet, for The Texas Company, and 12 vessels of various sizes for Empire Oil Refining Co. Production on both of these orders will start within the next 10 days.

VANCOUVER PIPE LINE

CHATHAM, Ontario, Mar. 15. — A project to utilize the surplus gas of the Turner Valley Field by piping it westward to Vancouver is being mooted. A pipe line this distance would cost approximately $18,000,000 and could supply gas along the route to the smelters at Trail, British Columbia. Possibilities of an extension southward from Vancouver to serve Tacoma and Seattle are also suggested. It is understood that American capitalists are willing to undertake the project if financial and other support can be secured from Canadian interests.

STEEL INGOT OUTPUT HEAVIER THAN THOUGHT

By B. E. V. Luty

PITTSBURGH, Pa., Mar. 17.—In the past three weeks pipe and tube mills have both been averaging an operation of 35 to 40 per cent, against approximately a 40 per cent average during January. The slightly higher operation then was probably due to jobbers and manufacturing consumers replenishing stocks after a very drastic cutting in December against January 1 inventory. Nothing fresh is heard as to when the Texas to Chicago natural gas line will be placed. Recent predictions are continued, that the line will be let in not less than 30 days and perhaps not more than 60 days.

There is a fair movement of standard or merchant pipe, hardly in keeping with the time of year as by this date there should be marked seasonal improvement. The Gulf Refining Co. is about to erect a very tall building, definitely overtopping the Koppers Building. Contract for the steel work is expected to be let in a short time.

The steel business as a whole has been slightly off for three or four weeks from its previous pace, but it had reached what was really a very high stage of activity in January and early February which seemed to represent too strong a pace. Failure to follow seasonal trend is the remarkable thing, for ordinarily there would have been some increase in the past 30 days.

Production of steel ingots, the basis of all rolled steel, as officially reported for February, proves to have been heavier than any of the estimates. The average for the month was above the highest estimate for any time in the month. Apparently peak production was reached at about the middle. The February rate was only 3 per cent below the average rate during 1929, and that was an exceptional year, making a new record by 9 per cent. Last month was 9 per cent under the preceding February and was well above any other February.

Steel makers have been unable to supply any adequate information as to the specific lines in which demand first very largely increased and then slightly decreased. Steel ingot production increased 21 per cent December to January and 21 per cent more January to February, while now it is off a few points from February. Rails, fabricated structural material and freight cars do not explain, for while active lately they were active previously. There are claims that automobile production is off this month from last month's rate, but last month the steel makers talked as if automobile trade demand was very poor whereas the preliminary report of February production shows rather a fair output considering all the conditions.

The Steel Corporation made a very good showing with its unfilled tonnage statement, there being 11,038 tons increase in February. There were two handicaps, the fact that shipments were heavy, against previous heavy buying, with lighter buying during the second half of the month, and the fact that there were heavy shipments of rails while the annual buying movement was ended.

Finished steel prices are unchanged. Sheet mills are trying to advance black and galvanized $2 a ton for second quarter.

BARNWELL EXTENSION

CHATHAM, Ontario, Mar. 15.—Arrangements are being discussed for the early extension of the Canadian Western Natural Gas, Light, Heat & Power Co. lines to serve the town of Barnwell, in southern Alberta.

TO PIPE NATURAL GAS TO COLORADO TOWNS

DENVER, Colo., Mar. 15.—The Fulton Petroleum Corp., organized under the laws of Delaware and operating in Montana, where it has considerable production, and in Utah, where it is drilling on the Farnham Dome for carbon dioxide gas, is entering the western Colorado field where it has acquired 4,672 acres on the Garmesa structure in Mesa and Garfield Counties. The company proposes to pipe natural gas to Grand Junction, a distance of approximately 26 miles, and also to serve Fruita, Palisade, Clifton and other towns. It has been granted a franchise by the city council of Grand Junction subject to approval at a special election in April, and has applied to the State public utilities commission for a permit to build the line. The estimated cost of the line is $260,000 and the plant in Grand Junction, $125,000. A subsidiary of the Public Service Co. of Colorado at present serves Grand Junction with manufactured gas.

There are two gas wells on the Garmesa structure which the company has acquired. These are the Sun Oil Co.'s No. 1 Smith, NE SW, Section 8-8s-102, which was drilled in 1924 to a total depth of 2,870 feet with a maximum daily capacity of 60,000,000 feet, and the Gypsy Oil Co.'s No. 1 Garmesa, SW SE, Section 5-8s-102, drilled to 3,871 feet with a daily capacity of 75,000,000 feet from the Dakota and McElmo horizons. It is reported that the company's plans include not only the furnishing of gas for domestic purposes but using the carbon dioxide gas which comes from some of the horizons for manufacturing dry ice.

BIG HOLDING COMPANY FOR NATURAL GAS LINES

NEW YORK, Mar. 17.—The Negotiations for the formation of a huge holding company to consolidate natural gas properties in Louisiana and Texas with yearly production in excess of 175,000,000,000 feet are expected to be consummated here shortly. The proposed deal will bring together a number of leading interests in the natural gas field including United Gas Co., Electric Bond & Share Interests, Magnolia Gas Co., Louisiana Gas & Fuel Co., Memphis Natural Gas Co. and others. The proposed new company it is understood will secure control of the Mississippi River Fuel Corp., which is already 47.4 per cent owned by the group involved in the proposed merger. The holding company which will take over the properties of the company involved will represent over $200,000,000.

PLAN PIPE LINE FROM CASPIAN TO MOSCOW

Exploratory work has been completed for what will be, when constructed, one of the largest oil pipe lines in the world, according to a recent issue of the Economic Review of the Soviet Union. It will be 1,700 kilometers long, and will be constructed between the Caspian Sea and Moscow and used for the transportation of Baku oil to Moscow. According to the project, oil from Baku will be shipped by tankers to the port of Makhach-Kala, whence it will be transported by the pipe line. A refinery to handle the crude oil will be built near Moscow. The projected figure for the carrying capacity of the pipe line is 1,600,000 tons per annum.

MUD A PROBLEM IN VENTURA AVE. FIELD

(Continued from Page 42)

places to build them on are becoming scarce on the lease, three methods are now being tried in an effort to solve this problem.

Three New Methods Described

The first two methods do not contemplate the elimination of the sumps, but expect the sand to be removed from the mud before it is returned to the mud-mixing plant after the oil is separated from it. This system will eliminate the long settling period and practically the entire amount of mud can be returned to the mud-mixing plant for reconditioning, thus eliminating the loss of good mud and preventing, to a great extent, the filling of the settling basins. A description of these two methods follows.

The first process makes use of a centrifuge of special design. This machine was set up at a well, with the intention of taking the sand from the mud at this well. An 8-inch mesh vibrating screen was installed above the centrifuge and a flume built from the screen to discharge into the centrifuge, which revolved at 600 r.p.m. The mud was pumped from the suction tank and discharged upon the screen, where all large substances were separated from the mud, so that the nozzle in the centrifuge would not become clogged. This machine took out a large part of the sand and saved considerable wear on the mud pumps in the rig. Also, two fish were recovered from this hole with the overshot and fish were found loose in the hole in both instances. However, this machine wastes some mud, and tests are still being conducted with it to obtain definite information as to its practical value.

Second Process

The second process makes use of a 40 to 60-mesh vibrating screen. It consists of a steel channel iron frame upon which a steam turbine is mounted to operate the vibrator. The screen is of Monel metal cloth and is mounted on bars, which are attached to the vibrating mechanism, with a speed of 1,600 vibrations per minute. The screen is set at an angle of 20 to 30 degrees and the mud as it circulates from the well to the suction pit flows upon the metal cloth, which vibrates very rapidly. This vibration forces the mud through the screen, whence it is returned to the suction pit. The sand particles bounce over the screen and are discharged from its lower end. The sand is separated from the mud so completely that only a small part of the mud formerly used at a well is now necessary. Only about 600 pounds of mud has been used in six weeks of drilling.

Both of the above described apparatus will also remove gas from mud in a very satisfactory manner. Though these machines are now installed at individual wells, larger units could be made to treat waste mud just before entering the settling basins, so that the mud could be immediately pumped from the basins to the mixing plant before any of the mud settled to the bottom of the basins.

The third method, of which only a small experimental plant has been in operation—although a large plant is now under construction—contemplates the entire elimination of large settling basins and is expected to return mud of desired weight directly to the wells for immediate use without returning the mud to the mixing plant for reconditioning and the addition of weight.

Can Be Used with the Other Methods

This plant can be used in conjunction with the other two methods described above, and if its operations are as satisfactory as they now promise to be, it will eliminate a considerable amount of mud mixing.

This last-named method has been an experiment with a classifier and settling tank or thickener. The waste mud from the wells is discharged into a classifier, such as is used in certain mining processes. The mud is then diluted with water from the top of the thickening tank, until the classifier is able to extract practically all the sand, and the gas is allowed to escape from the mud. The diluted mud, free from sand, is then pumped into the thickening tank, where it settles to the bottom of the tank and the oil and water are drawn off from the top. The mud is then pumped from the bottom of the tank, weighing as high as 80 pounds per cubic foot—a weight that can probably be increased. This mud contains only a small percentage of 200-mesh sand.

Obviously, a certain amount of mud is lost in the operation of these systems and a certain amount will continue to be lost during drilling. However, with the successful operation of these or other similar systems, a great saving will be made in the amount of new mud fluid that must be mixed, and a better mud fluid will be available for the drilling of wells.

Use of Mud in Running Casing

Before running casing, the hole is conditioned with mud weighing about 75 pounds per cubic foot. The mud cannot be thinned below this weight as the walls of the hole are apt to cave with less weight. Heavier mud than this has a tendency to settle, if not kept in motion. In running long strings of casing, from 20 to 30 hours elapse from the time the drill pipe is pulled from the hole until the casing is run to bottom. If the mud has settled to any great extent, difficulty will be encountered in getting the casing to bottom.

The addition of Aquagel, or other substances—such as mud-it, hydrated lime, or rotary gel—that will tend to jell the mud, will help materially in keeping the mud in suspension. However, unless the mud must necessarily be carried heavier than usual to keep the hole that has a bad caving condition from sloughing, ordinary mud weighing 75 pounds and free from sand has been found to be quite satisfactory. Several years ago in running long strings of casing when the quality of mud was not as good as it is now, the practice was to put several hundred barrels of oil into the casing. At intervals when the pipe became loggy some of this oil was pumped out to prevent the casing from sticking. Although this method was quite successful, it has now been discontinued—except with extremely long strings of casing with a large amount of friction or in tight holes—as it was found that with mud that is free from sand it is not necessary, and practically all casing is now successfully landed on bottom without the use of oil.

Mud for Loss of Circulation

When circulation is lost a thick mud that will plaster the walls of the hole and fill the cavities is desired. The best substance for regaining circulation is believed to be materials as Aquagel, Rotary gel, hydrated lime, Bentonite, and Mud-it, which will thicken and have a tendency to jell the mud. Although Aquagel is the only substance that has been used here, the other substances mentioned are said to secure somewhat the same results. The chief precaution to be taken in the use of Aquagel is to be sure that it is properly mixed, so that every particle comes in contact with water in order that it may form a jelly. If it is not thoroughly mixed, it will form in lumps, which have an outside coating of jelly and are dry in the center.

The most effective way to mix this material is to use a cone-shaped hopper with a water or mud jet in the bottom. The powdered Aquagel is fed into the top of the hopper and is thoroughly mixed with mud or water coming through the jet. Bentonite, Rotary gel, or hydrated lime would be mixed in the same manner, but Mud-it is an oily fluid that is added directly to the mud fluid at the well, either in the ditch or suction pit, and creates a jellying action in the mud.

When a hole has complete loss of circulation, it is well to pump mud with the addition of some jellying compound into the hole and allow the hole to stand unmolested for a period of from 12 to 24 hours. However, if only a partial loss occurs, the jellying substance may be added to the mud as drilling progresses.

Heavy minerals have also been added to the mud in attempts to recover lost circulation but not with completely satisfactory results.

The swelling characteristics of beet pulp and cotton seed hulls has promoted their use to fill cavities present in the hole. The pumping of these materials into the hole has sometimes been responsible for the recovery of lost circulation.

For Squeezing and Caving Formations

Squeezing and caving formations are sometimes confused and believed to be the same thing. It is quite true that it is very difficult, and often impossible, to differentiate between the two. Caving formations can sometimes be "walled up" by thickening the mud, but if a bad caving condition is present, it can probably be more quickly and permanently relieved by the addition of jellying substances that have been mentioned under muds for loss of circulation, as they will add to the mud a plastering quality.

However, if the formation is squeezing in, thus reducing the diameter of the hole, the correct procedure is to increase the static weight of the fluid column, so that the static pressure will tend to keep the hole from squeezing in. The addition of jellying substances that have a lower specific gravity than the clay used will not help this condition, as the resulting mixture will be lower in specific gravity than pure clay mud.

Squeezing formations can sometimes be overcome by the addition of heavy minerals or salt, which increase the static head of the fluid column. As heavy minerals are more universally used to combat high gas pressures, they will be discussed more in detail under that head. They are used similarly to combat the squeezing hole problem. Salt has been used to a slight extent to increase the weight of the fluid column, with some degree of success in combating squeezing holes.

Salt dissolves in the mud fluid and increases its weight without thickening the mud to any extent. Salt, however, forms a slight froth in the mud, probably due to some chemical reaction between the salt water and certain substances in the Ventura clay, which in the presence of gas is greatly increased, so that it has not been successfully used in combating high gas pressures. This chemical action may be greater or less in other muds, and if it is very great will probably lighten the fluid rather than increase its weight, if the gas formed is retained in the mud.

For Combating High Gas Pressures

Pure clay mud fluid without the addition of heavy minerals weighing 90 pounds per cubic foot (specific gravity 1.44) is effective in controlling ordinary gas pressures. However, when heavier mud than 90 pounds per cubic foot is needed the addition of heavy minerals to the mud is advisable.

Although the writers have observed the use of mud fluid mixed from Ventura clay without the addition of heavy minerals weighing as much as 94 pounds per cubic foot (specific gravity 1.5), this mud was so thick that it was with difficulty that pumps were able to handle it. However, mud with the addition of heavy minerals weighing as much as 100 pounds per cubic foot (specific gravity 1.7), could be handled more easily than pure mud fluid weighing 94 pounds per cubic foot.

However, mud fluid that with the addition of heavy minerals weighs 100 pounds per cubic foot (specific gravity 1.60) is sufficiently heavy to control any gas pressures yet encountered in the Ventura Avenue Field if the gas is completely mudded off before attempting to come out of the hole with the drill pipe.

It may be advantageous if only 90 pounds mud fluid is desired, to use some heavy mineral, as a much thinner fluid may be obtained than by the use of pure clay mud. Thus, 80 pounds mud fluid may be raised to 90 pounds by the addition of 18 pounds of heavy mineral to 100 pounds of mud fluid. This fluid is more easily handled by the pumps and if it is desired to use it for drilling it will drop cuttings much more easily.

However, it is not thought advisable to mix heavy minerals with mud fluid weighing less than 80 pounds per cubic foot, as there will not be enough clay in the mud to keep the heavy mineral in suspension.

Many Substances on Market

Practically all of the heavy minerals now being manufactured for use in drilling mud have a base of either hematite or barite though some contain considerable magnetite. There are so many trade names for these substances that they will not be mentioned. For use in mud fluid there is generally added some "suspender" to the base mineral, that will tend to keep the heavy mineral in suspension. The chief of these "suspenders" are bentonite, or other clay, and Aquagel.

Heavy mineral compounds for use in mud fluids have an approximate specific gravity of 4.0. One of the chief factors in heavy mineral compounds is the fineness. The material must be ground very fine or it will settle too quickly. The material should be ground so that 98 to 99 per cent will pass through a 200-mesh screen.

It will be seen by the foregoing statements that attention to mud fluid in the drilling of oil wells amply repays the effort and expense it entails.

We believe that aside from the big saving on pumps and pump parts, the proper attention to conditions of mud prevents blowouts, reduces the amount of frozen strings of drill pipe, and casing, and that when fishing jobs occur it greatly increase the chances that these fishing jobs will be brought to a fast and successful conclusion.

The argument may be made that the lessened amount of frozen drill pipe and casing, and the greater ease with which lost drill pipe is recovered from the hole, are due to the drilling of straighter holes. Undoubtedly straight holes and better equipment are great aids to keeping out of difficulties, but it cannot be denied that mud fluid that is of proper weight and consistency, and that is free from sand, is entitled to a large share of the credit for the drilling of deeper and still deeper wells in the Venture Avenue Field with more certainty of success and in a more economical manner.

WRONG INTERPRETATION

In an article on Oklahoma City Salt Water Disposal, appearing in the March 6 issue of The Oil and Gas Journal, the statement was made that "it was decided that as the main line never would be required to carry over 125 pounds pressure the Naylor type spiral pipe could be used." It is understood this has been interpreted as limiting the strength of Naylor pipe to 125 pounds pressure. Naylor pipe used on this line will meet all working pressure requirements of standard weight pipe and this is likewise true of all Naylor pipe.

DAVID RUSSELL SHIRAS DEAD

PITTSBURGH, Mar. 14.—David Russell Shiras, 85, member of a pioneer Pittsburgh family and associated with the early development of the natural gas industry of Western Pennsylvania, died here today.

He became connected with the Columbia Light & Fuel Co. shortly after the discovery of natural gas near Franklin, Pa., and directed the construction of field and service lines in the Sharon district. Later he was associated with the Tri-State Fuel Co. at Ironton, Ohio. He retired in 1904.

EMPIRE P. L. STATEMENT

The Empire Pipe Line Co.'s statement for February shows crude runs of 1,642,836 bbls., daily average 58,673 bbls.; shipments 1,227,284 bbls., daily average 43,832 bbls.; stocks at the close of February, 6,977,620 bbls.

R. T. HATCHER DIES

R. T. Hatcher, purchasing agent for the Woodley Petroleum Co. of Shreveport, La., with which he had been connected for 10 years, died at his home there after an illness of two months.

OKLAHOMA FIELDS

(Continued from Page 50)

in the Seminole district. During the week Kawfield Oil Co. of Tulsa and R. W. Olmstead sold 200 acres of leases in the Konawa area in Township 6-6 to E. L. Harris, Dropleman & Hilton, Phillips & Davies for a consideration of $100,000. The acreage was scattered and was located as follows; NE SE, Section 20-6-6; NW NE, Section 29-6-6; SE NE, Section 29-6-6, and W half, Section 18-6-6.

Empire Oil & Refining Co.'s No. 1 Sachemeche, NW cor. SW, Section 9-6-6, flowed 559 bbls. from a total depth of 2,880 feet. Same company's No. 3 Sachemeche, SE cor. NW SW, Section 9-6-6, made 502 bbls. in 18 hours from a total depth of 2,938 feet. No. 4 had Cromwell sand at 2,919-21 feet. Twin State Oil Co.'s No. 1 Charlie, NE cor. SE SW, Section 8-6-6, was making some water at a total depth of 3,983 feet. Prairie Oil & Gas Co.'s No. 1 Nora, SW cor. NW NE, Section 9-6-6, cored shale at 3,112-32 feet.

Seminole Field Development

In the Little River area gas showings were found during the week. Gypsy Oil Co.'s No. 4 Walker, SW cor. SE, Section 5-7-7, an old well drilled deeper, had Cromwell sand at 3,218-40 feet, and after drilling to 3,937 feet, it was plugged back to the Cromwell sand where it made 40,000,000 feet of gas. Amerada Petroleum Corp.'s No. 1 Billington, NW cor. SW NE, Section 24-7-6, at a total depth of 3,083 feet, made 5,000,000 feet of gas. Magnolia Petroleum Co.'s No. 1 Reed, NE cor. SE SW, Section 8-7-7, cored a sand at 3,184-95 feet with a showing of gas. Gypsy Oil Co.'s No. 3 Willie, NE cor. NW NE, Section 24-7-6, flowed 1,102 bbls. in 14 hours on the airlift, and 10 hours natural. Same company's No. 4 Willie, SE cor. NW NE, Section 24-7-6, was shot with 20 quarts and made 855 bbls. in 18 hours. Prairie Oil & Gas Co. and Tom Slick Oil Co.'s No. 2 Davis was shot with 10 quarts and swabbed 205 bbls. in 15 hours.

St. Louis Pool has few tests. Independent Oil & Gas Co.'s No. 4 Westerfeldt, NW cor. Section 2-7-4, flowed 137 bbls. from the Hunton lime at 3,775 feet. Magnolia Petroleum Co.'s No. 3 Hilton, NW cor. Section 22-7-4, made 150 bbls. from the Hunton lime, with the total depth at 3,897 feet, in Sylvan shale. Sinclair Oil & Gas Co.'s No. 4 Brandenburg, NW cor. SW SW Section 7-7-5, was shot with 7 quarts at 4,026-36 feet, total depth 4,038 feet. The well swabbed 135 bbls. in 17 hours.

Wilcox Oil & Gas Co. and Amerada Petroleum Corp.'s No. 1 Munnah, NE cor. Section 25-9-6, in the southwest part of the East Earlsboro Pool, had Cromwell sand at 3,594-3,601 feet, where the sand was cored with nothing showing. Gypsy Oil Co.'s No. 1 Taylor, SE cor. NE SW Section 19-9-6, swabbed 548 bbls. in 21 hours from a total depth of 4,159 feet in the Wilcox sand. Same company's No. 2 Taylor, NE cor. SE SW Section 19-9-6, was drilled to a total depth of 4,145 feet, where it swabbed 517 bbls. in 14 hours.

In the old Seminole City Pool, some of the wells were drilled deeper to the second Wilcox sand and after a shot increased their production. Pure Oil Co.'s No. 5 Strothers, NW cor. NE SW Section 26-9-6, was drilled from the old total depth of 4,198 feet to 4,212 feet, where it was shot with 30 quarts and made 480 bbls. on the pump. Same company's No. 6 Strothers, SE cor. SW Section 26-9-6, was deepened from 4,078 feet to 4,090 feet, where it was cleaning out after a 60-quart shot.

Another Chandler Producer

Magnolia Petroleum Co. added another producer in the Chandler area during the week. The well was No. 1 Mayer, NE cor. Section 17-14-4, which flowed 664 bbls. the first 10 hours from the Simpson sand at 4,994-96 feet. The well is making 60 bbls. an hour.

Old wells in the area southwest and west of Cushing in Payne County were drilled deeper and increased their production. These wells were producing from the Wilcox sand. Mulberry Oil & Gas Co.'s No. 4, NE cor. NW NW Section 5-17-4, Payne County, was drilled from 4,247 feet to 4,308 feet, where it increased to 850 bbls. a day. Same company's No. 6, SW cor. NW NW Section 5-17-4, Payne County, was deepened from 4,159 feet to 4,164 feet, where it flowed 602 bbls. in 12 hours. Skelly Oil Co.'s No. 3, SW cor. SE SW Section 3-18-4, Payne County, was rigging up to drill deeper at the old total depth of 4,181 feet.

Southern Oklahoma

In southern Oklahoma water was found in the deep sand in one of the late wells in the Cement Pool. English Drilling Co.'s No. 1 Melton, C N half SE Section 26-6-10w, Caddo County, has a hole full of water from sand at 3,474-87 feet. The test is shut down for orders. Louisiana Oil & Refining Co.'s No. 3 Jones, NE cor. SW SE Section 31-6-9w, Caddo County, was bailing and swabbing after drilling the cement plugs. The oil was encountered at 3,233-48 feet.

Prairie Oil & Gas Co.'s No. 2 McCartney, SE cor. NW SE Section 30-1s-3w, Carter County, was drilling by collapsed casing. The cement plugs had been drilled when the casing collapsed. The oil was found in sand at 2,914-31 feet.

Wirt Franklin Petroleum Corp.'s No. 1 First National Bank, NW cor. NE NW Section 8-2s-6w, Stephens County, a semiwildcat a half mile northwest of production, in the Palacine Pool, had a dry sand at 3,490-95 feet, and was coring at 3,501 feet. Dunmar Oil Co.'s No. 2 Randel, SW cor. Section 10-2s-6w, Stephens County, has casing cemented at 2,812 feet, after finding a showing of oil in sand at 2,812-22 feet. No. 1 Randel, SE cor. 9-2s-6w, which extended production in the area a half mile southeast was flowing about 340 bbls. daily.

Shipments From Oklahoma City

Pipe line and tank car shipments averaging 69,809 bbls. daily from the Oklahoma City Pool for the week ending March 12 were as follows:

Company—	Bbls.
Empire	110,603
Indian Territory	40,692
Magnolia	45,092
Oklahoma	130,423
Prairie	130,522
Shell	18,005
Sinclair	5,185
Tidal	8,142
Total	488,664
Daily average	69,809

Greater Seminole Production

Production from the important pools in the Greater Seminole area continued to increase again. The area shows an increase of about 39,000 bbls. for the week ending March 12. The Seminole Field averaged 259,425 bbls. from 1,821 wells for the same period. The daily average gauges for the different pools in the area were as follows:

Pool—	Wells	Bbls.
Little River	364	49,771
East Little River	61	21,894
Carr City	58	9,955
Maud	137	6,174
Mission	108	14,723
Bowlegs	284	34,614
Earlsboro	293	40,468
East Earlsboro	131	42,358
Seminole	267	26,718
East Seminole	31	4,125
Searight	87	8,625
Allen	257	19,878
Asher	26	2,400
Konawa	20	7,543
St. Louis	481	44,635
Sasakwa	46	8,422
Total	2,651	342,303

Shipments From Field

The daily pipe line and tank car shipments for the seven days ending March 12 were 234,915 bbls. from the Seminole area, an increase of 22,000 bbls. from the previous week. The shipments by companies for the week were as follows:

Company—	Bbls.
Barnsdall	2,293
Champlin	4,327
Continental	1,337
Consolidated	470
Cosden	5,707
Empire	6,200
Gypsy	26,997
Magnolia	13,278
Oklahoma	36,623
Prairie	28,252
Producers & Refiners	1,898
Pure	5,533
Shaffer	4,293
Shell	19,709
Sinclair	45,764
Texas	15,863
Tidal	13,373
White Oak	2,238
Total	234,254
Tank cars	661
Grand total	234,905

Beckham County

Sayre Oil & Refining Co.'s No. 1 Porch, SW cor. NW SE, Section 24-9-23w, has been completed for 100 bbls. at 2,697 feet.

Caddo County

Noble & Olson's No. 3 Ed Rowe, SW cor. NW SE NE, Section 36-6-10w, has been deepened to 3,439 feet and shut down. Ramsey Petroleum Co.'s No. 2 Gregory, SE cor. NE SW, Section 31-6-9w, is rigging up. Magnolia Petroleum Co.'s No. 6 Caddo Rowe, SE cor. NE SW NE, Section 36-6-10w, is producing 540 bbls. from sand 3,302-27 feet.

Cotton County

Shasta Oil Co.'s No. 4 Burneaugh, NE cor. SE, Section 2-2s-10w, is drilling at 1,500 feet. Cullum & Perkins' No. 1 Vorhees, NE cor. SW SE, Section 29-1s-9w, has been abandoned at 2,500 feet. Shasta Oil Co.'s No. 1 Tan-Nah, SW cor. NE, Section 31-1s-9w, is dry and abandoned at 2,602 feet. Harris & McNeal's No. 1 Chambers, SW cor. NW, Section 1-2s-10w, is flowing 95 bbls. from sand 2,156-70 feet. Shasta Oil Co.'s No. 2 Whitehead, SW cor. NW NW NE, Section 1-2s-10w, made a 15-bbl. pumper in sand 2,194-2,200 feet.

Greer County

Helmerich & Payne's No. 1 Houck, C NW NW, Section 23-6-24w, is dry and abandoned at 2,242 feet.

Hughes County

Magnolia Petroleum Co.'s No. 6 Oliphant, NE cor. SE NW, Section 18-9-9, is flowing 175 bbls. from Cromwell sand 3,458-71 feet. Troutt Drilling Co.'s No. 3-A Bird, C W half SE NW, Section 5-8-11, is dry and abandoned at 1,670 feet.

Jefferson County

Carter Oil Co. has the rig up for No. 3 Seay, SE cor. NW SE SW, Section 34-6s-5w. O. V. Beck's No. 8 Seay, NE cor. SW SE SW, Section 34-6s-5w, is rigging up.

Oklahoma County

Tom Slick Oil Co. and others made location for No. 1 Duniven, SW cor. SE NW, Section 1-11-3w, Oklahoma City Pool. Phillips Petroleum Co. made location for No. 1, SW cor. NE NE SW, Section 1-11-3w. Cromwell-Franklin Oil Co. and others' No. 11 Trosper Park, SE cor., Section 12-11-3w, made 6,035 bbls. in Arbuckle lime 6,100-6,500 feet. Wirt Franklin Petroleum Corp.'s No. 7 Lowery, CEL NW, Section 12-11-3w, has been completed for 22,670 bbls. in sand 6,278-6,352 feet. Indian Territory Illuminating Oil Co. and others' No. 1 L. Trosper, NW cor. SW NW, Section 12-11-3w, made 4,121 bbls. in sand 6,377-97 feet. Cromwell-Franklin Oil Co.'s No. 4 Trosper Park, SW cor. NE, Section 13-11-3w, produced 5,950 bbls. in Arbuckle lime 6,097-6,450 feet. Indian Territory Illuminating Oil Co. and others' No. 1 A. Brokaw, NW cor. NE NE, Section 13-11-3w, has been completed for 2,090 bbls. in Arbuckle lime 6,153-6,437 feet. Indian Territory Illuminating Oil Co. and others' No. 2 Brokaw, NE cor., Section 13-11-3w, made 6,327 bbls. in Arbuckle lime 6,077-6,494 feet. No. 4 Trosper, SW cor. SE SW, Section 13-11-3w, has been completed for 45,000,000 feet of gas in sand 6,394-6,417 feet. No. 7 Trosper, NE cor. NW SW, Section 13-11-3w, made 160,000,000 feet of gas in sand 6,246-6,364 feet. No. 1 Unsell-Krager Consolidated, NE cor., Section 23-11-3w, has been completed for 3,001 bbls. in sand 6,483-91 feet. No. 2 Farley, SW cor. NW NW, Section 19-11-2w, flowed 39,666 bbls. in Arbuckle lime 6,004-6,465 feet. Shell Petroleum Corp.'s No. 2 Petty, SW cor. NE, Section 30-11-2w, made 285 bbls. in sand 6,191-6,298 feet. Sinclair Oil & Gas Co. and Amerada Petroleum Corp.'s No. 3 Kinter, NW cor. SW SE, Section 30-11-2w, has been completed for estimated 740 bbls. in Arbuckle lime 6,422-35 feet. Shell Petroleum Corp.'s No. 5 Petty, NW cor. SW NE, Section 30-11-2w, drilled to 6,504 feet and plugged back to 6,215 feet and completed for 510 bbls. after being shot.

Osage County

Peters Petroleum Corp.'s No. 10, SE cor. NE SE, Section 22-27-11, is drilling at 525 feet. L. C. Stanley's No. 9, NE cor. SW SE, Section 36-22-8, is spudding. Utilities Production Co.'s No. G-1, NE cor. NW NE SE, Section 1-26-6, has been completed for 2,000,000 feet of gas in sand 1,389-1,411 feet. McCune Wormser and others' No. 13, NW cor. SE SE NW, Section 15-24-8, is dry and abandoned at 511 feet. Indian Territory Illuminating Oil Co.'s No. 1, NW cor. NE SW, Section 32-23-10, made 20 bbls. in sand 2,548-68 feet after plugging back from 2,650 feet. Branstetter and Barnsdall Oil Co.'s No. 8, NE cor. SE, Section 22-22-11, has been completed for 10 bbls. in Bartlesville sand 1,623-43 feet.

Pawnee County

Martin and others' No. 6 Cotton, NW cor. NE SW, Section 6-20-8, is a machine rigging up. Reece & Fugate's No. 1-A Turner, CWL NW NW, Section 18-20-8, is benig deepened from 470 feet, now running 5-inch casing at 930 feet. The Prairie Oil & Gas Co.'s No. 1 Cotton, SW cor. SE NW, Section 6-20-8, has been deepened to Tucker sand 2,635-50 feet and completed for 130 bbls.

Pottawatomie County

Pure Oil Co.'s No. 1 Mayes, SE cor. NW, Section 9-8-5, is dry and abandoned at 4,350 feet. Gypsy Oil Co.'s No. 1 Rose, SW cor. SE NE, Section 4-7-4, is making 65 bbls. from Viola lime 4,152-4,206 feet. Magnolia Petroleum Co.'s No. 2 Wyatt, SW cor. NE, Section 4-7-4, swabbed 568 bbls. from Hunton lime 3,800-3,954 feet. Pure Oil Co.'s No. 2 Duvall, NE cor. SE, Section 4-7-4, North St. Louis Field, is dry and abandoned at 4,032 feet. J. H. Gwin's No. 1 Coley, NW cor. SE SE, Section 24-7-4, flowed 710 bbls. from Hunton lime 3,620-3,857 feet. Gypsy Oil Co.'s No. 1 Swartz, NW cor. SE NW, Section 2-7-4, has been completed for 117 bbls. in Hunton lime 3,717-3,845 feet. Independent Oil & Gas Co. and others' No. 1 Larsh, NE cor. SW SW, Section 2-7-4, made 35 bbls. at 3,950 feet after it was plugged back from 4,025 feet. Mid-Continent Petroleum Corp.'s No. 1 McGee, SW cor. NW, Section 3-7-4, is dry and abandoned at 4,060 feet in Sylvan shale.

Carter County

Magnolia Petroleum Corp. is erecting the rig for No. 3 Gill, SE cor. SW NE, Section 23-1s-3w.

Coal County

W. E. McCraw's No. 1 King, C SW NE, Section 11-1-8, is underreaming to deepen from 2,285 feet.

Creek County

J. W. Merritt and others' No. 1 Richards, NW cor. SE NE, Section 27-18-8, has been completed for 15 bbls. on pump, producing from sand 1,299-1,318 feet. H. L. Skelly and C. O. Buckles' No. 2 Goodman, SW cor., Section 23-17-9, has been completed for 2,000,000 feet of gas in sand 1,255-60 feet.

Grant County

Continental Oil Co. and others' No. 4 Frantz, C NW SE, Section 35-28-3w, has been completed for 8,000,000 feet of gas in sand 4,165-4,200 feet.

Kay County

Lancer and others made location for No. 1 Brooks, C SE NW, Section 29-29-1. Blankenship Petroleum Co. and others made location for No. 1 Hansen, SW cor. NW SW, Section 17-27-2. Wentz Oil Corp.'s No. 23 Welch, NE cor. SW, Section 17-28-1, has been completed for 100 bbls. in sand 3,307-09 feet.

Lincoln County

Earl D. Prowant and others' No. 1-A Prowant, NW cor. NE NW, Section 2-16-4, is a cellar.

Logan County

Blackwell Oil & Gas Co. made location for No. 1 Knecht, NW cor. SW SE, Section 21-18-4w.

Marshall County

Bilbo Oil Trust Co.'s No. 8 Talifero, SW cor. NE SE, Section 14-5s-5, is drilling at 400 feet. Flemming & Kimbrell moved a machine in for No. 3 R. H. Null,

SW cor. NE NW, Section 24-5s-5. F. W. Merrick's No. 14 R. H. Null, NW cor. SE NW, Section 24-5s-5, is drilling at 495 feet. W. A. Neff and others' No. 1 Crouch, SW cor. NW SE, Section 11-5s-5, has been abandoned at 1,035 feet.

Muskogee County

Bryan Petroleum Co.'s No. 2 Rolland, CNL SW, Section 19-16-16, is rigging up. H. L. Jolly has a machine on the location for No. 1 Spaulding, SE cor. NE, Section 8-15-18. D. L. T. Co. and others' No. 2 Mackey, SW cor. SE NW SW, Section 9-15-18, is rigging up. J. M. Foltz and others' No. 1 Mackey, NW cor. SW NE SW, Section 9-15-18, is rigging up. H. L. Jolly has a machine on the ground for No. 1 Rentie, SW cor. NW, Section 9-15-18. L. R. Kershaw's No. 4 Fee, SW cor. NW NW SE, Section 15-13-18, is spudding. E. Mills and others' No. 3 J. Foreman, CWL NE SE, Section 15-13-18, is spudding. C. F. Ray and others' No. 2 F. Foreman, NE cor. SE NW SE, Section 15-13-18, is a machine. H. D. Johnston and others' No. 2 Lowther, NE cor. NW, Section 23-13-18, is spudding. Mid-Western Oil & Gas Co.'s No. 1 Phillips, C SW NW, Section 31-12-19, is spudding.

Bryan Petroleum Co.'s No. 4 N. Barnett, SE cor. NE, Section 8-15-15, has been completed for 25 bbls. in sand 1,673-79 feet. D. L. T. Co.'s No. 1 Mackey, NE cor. SW SW, Section 9-15-18, has been abandoned at 800 feet. Gillespie & Hale's No. 1 Jennings, SE cor. SW NW, Section 1-13-18, is dry and abandoned at 1,255 feet. Ray & Berry's No. 1 Johnson, CNL NW SW, Section 14-13-18, has been completed for 1,500,000 feet of gas in sand 783-97 feet. L. R. Kershaw's No. 3 Fee, SE cor. NE NW SE, Section 15-13-18, made 1,500,000 feet of gas in sand 665-73 feet. M. S. Mussellem's No. 2 Cole, SW cor. SE NW NE, Section 5-13-19, has been abandoned at 1,465 feet.

Okfuskee County

Champlin Oil & Refining Co.'s No. 5 Ingram, NE cor. SW SW, Section 14-11-11, is drilling at 1,010 feet. F. A. Havel has the rig up for No. 1-A Likowski, NE cor. NW, Section 26-11-11. F. D. Misener's No. 3 Robinson, NW cor. SW NW, Section 12-10-11, is a machine. Atlantic Oil Producing Co.'s No. 1 Fife, NE cor. NW, Section 7-10-12, is an old well drilling deeper at 3,000 feet. G. B. Suppes and others' No. 1 Severs, NW cor. SW SE, Section 35-11-9, has been completed for 15 bbls. in sand 1,479-89 feet. Champlin Oil & Refining Co. and Empire Oil & Refining Co.'s No. 12 Tucker, SW cor. NE SW, Section 15-11-11, is a dry hole at 3,520 feet. W. L. Umburn and others' No. 1-A A. Barnett, CEL NE NW, Section 3-10-11, has been abandoned at 2,245 feet.

Okmulgee County

La Bean Drilling Co.'s No. 7 Bruner, C NE SW, Section 23-15-11, is a rig. J. H. Rebold has a machine on the location for No. 1 D. Hawkins, SW cor. NW NE, Section 6-15-13. The rig is up for No. 3 Scott, SW cor. NW NE, Section 27-13-11. Kirkland & Son's No. 10 A. Bell, SW cor. SE NE NW, Section 17-15-13, made an 8-bbl. well in sand 1,397-1,481 feet.

Payne County

Skelly Oil Co. and Mulberry Oil Co.'s No. 3 Ballard, SW cor. SE SW, Section 32-18-4, is rigging up to deepen from 4,181 feet. Mulberry Oil Co.'s No. 6 Sharrum, SW cor. NW NW, Section 5-17-4, is drilling deeper at 4,159 feet. Shaffer Oil & Refining Co.'s No. 2 Daws, NE cor. SE NW, Section 4-18-5, has been abandoned at 3,641 feet. Transcontinental Oil Co.'s No. 3 Lincoln, SE cor. SW SE, Section 4-18-5, made 180 bbls. in Wilcox sand 3,610-38 feet. Shaffer Oil & Refining Co.'s No. 3 Echo Hawk, NE cor. NW NE, Section 9-18-5, has been completed for 850 bbls. in Wilcox sand 3,577-3,608 feet.

Pontotoc County

Benedum & Trees Oil Co. has the rig up for No. 1 Starritt, SW cor. SE SW, Section 28-5-5, Bebee Pool. No. 3 Coker, SE cor. NW NW, Section 31-5-5, is drilling at 50 feet. The Prairie Oil & Gas Co. made location for No. 1 Norris, SW cor. SW SW, Section 6-4-8. Benedum & Trees Oil Co.'s rig is up for No. 9 Mole, NW cor. NE, Section 31-5-5. American Oil & Refining Co.'s No. 5 Robertson, SE cor. SW SE, Section 19-5-5, has been completed for 40 bbls. in Viola lime 2,424-54 feet. Benedum & Trees Oil Co.'s No. 7 Mole, SE cor. NE, Section 31-5-5, made 35 bbls. in sand 2,505-2,643 feet. Payne & Clark's No. 2-A Shields, SW cor. SE, Section 20-5-8, is making 15 bbls. from sand 948-58 feet. Clark & Cowden's No. 2 Clark, SE cor. NW NE, Section 29-5-8, has been completed for 18 bbls. in sand 886-98 feet. Homaokla Oil Co.'s No. 7 Ritchie, SW cor. SE SE, Section 1-4-7, made 240 bbls. from sand 1,992-2,021 feet.

Pittsburg County

Mid-Western Oil & Gas Co. has a machine on the ground for No. 1 Trekell, NW cor., Section 14-7-18. R. P. Lester and others' No. 2 E. Carney, NE cor. NW NE, Section 15-7-18, has been completed for 25,000,000 feet of gas in sand 1,823-1,918 feet.

Seminole County

Amerada Petroleum Corp. and others' No. 3 Gross, SE cor. SW NW, Section 24-9-5, South Earlsboro Pool, is a rig on the ground. Superior Oil Corp. and Blackwell Oil & Gas Co. made location for No. 1 Robertson, NW cor., Section 33-8-6. Magnolia Petroleum Co. moved the rig in for No. 5 Campbell Reed, NW cor. NE SW, Section 4-8-7. The rig is under construction for No. 1 Melo Reed, SW cor., Section 33-8-7. Reynolds Drilling Co. is building the rig for No. 1 Decker, NW cor. SE NE, Section 16-6-6, Konawa Pool. Dixie Oil Corp. has the rig on the ground for No. 2 Griffin, SW cor. NE NW, Section 17-6-6. Wofford & Carter Oil Co. made location for No. 1 Factor, NE cor. SE, Section 18-6-6. Hilton Phillips and others' No. 2 Hyde, NE cor. SE NE, Section 20-6-6, is a rig on the ground. Shell Petroleum Corp. moved the rig in for No. 1 Caesar, NW cor. SE SE, Section 20-6-6. Twin State Oil Co. has the cellar dug for No. 1 Charlie "A," SE cor. NE NE, Section 20-6-6. Burke-Greis Oil Co. made location for No. 1 Caesar, NW cor. SW SW, Section 21-6-6. Gypsy Oil Co. has the rig on the ground for No. 1 Hepsey, SW cor. SE NW, Section 21-6-6. Harris and others' No. 1 Burgess, NW cor. SW, Section 21-6-6, is a rig on the ground. Mid-Continent Petroleum Corp. made location for No. 1 Caesar, NW cor. NE SW, Section 21-6-6. Hilton Phillips and others staked location for No. 1 Burgess, NE cor., Section 29-6-6. Magnolia Petroleum Co. made location for No. 1 Deavers, NW cor. NE SW, Section 29-6-6. Denver Producing & Refining Co. has the rig up for No. 3 Stafford, NE cor. NW SW, Section 31-5-5, Bebee Pool. Gypsy Oil Co.'s No. 6 Peters, C SE NE, Section 23-5-7, is drilling at 1,000 feet. W. B. Pine's No. 2 Davis, SE cor. NW NW, Section 17-5-8, is drilling at 500 feet.

The Prairie Oil & Gas Co.'s No. 5 Baker, SE cor. SW NE, Section 24-9-5, East Earlsboro Pool, made 4,600 bbls. in 22 hours from Viola lime 4,095-4,126 feet. Carter Oil Co.'s No. 3 Community-Slick, SE cor. NW SW, Section 11-9-6, flowed 2,625 bbls. from Wilcox sand 4,085-4,109 feet. No. 3 Wrightsman, SW cor. NE NE, Section 19-9-6, East Earlsboro Pool, has been completed for 110 bbls. at 4,233 feet after plugging back from 4,281 feet in second Wilcox sand tpoped at 4,271 feet. Wofford and others' No. 1 Davis, SE cor. NW, Section 29-8-7, is dry and abandoned at 4,292 feet. Pure Oil Co.'s No. 6 Harjo, NW cor. SW NE, Section 11-7-6, Little River Pool, has been completed for 1,003 bbls. in sand 3,150-55 feet. Mid-Continent Petroleum Corp.'s No. 14 Smith, SW cor. NW SE, Section 5-7-7, East Little River Pool, made 1,135 bbls. from sand 3,175-3,200 feet. Sinclair Oil & Gas Co.'s No. 9 Phillips, SW cor. NE SE, Section 5-7-7, had Cromwell sand 3,216 feet, total depth 3,251 feet and made 305 bbls. Magnolia Petroleum Co.'s No. 3 Brame, SW cor. NE NE, Section 8-7-7, swabbed 504 bbls. from Cromwell sand 3,195-3,205 feet. Mid-Continent Petroleum Corp.'s No. 4 Yarhola, NW cor. SE NE, Section 8-7-7, has been completed for 204 bbls. in sand 3,270-80 feet. The Prairie Oil & Gas Co. and T. B. Slick's No. 4 Tiger, SE cor. NW NE, Section 8-7-7, has been completed for 42,000,000 feet of gas in Cromwell sand 3,254-69 feet. Empire Oil & Refining Co.'s No. 2 Sachemeche, NW cor. SW, Section 9-6-6, flowed 782 bbls. in sand 2,885-97 feet. Champlin Oil & Refining Co. and Shell Petroleum Corp.'s No. 3 Sachemeche, NE cor. SW SW, Section 9-6-6, Konawa Pool, has been completed for 168 bbls. in sand 2,922-87 feet, total depth 2,992 feet. McCulloch Oil Co.'s No. 1 Davis, SW cor. NW, Section 10-6-6, is dry and abandoned at 3,096 feet. Pure Oil Co.'s No. 8 Bates, SW cor. SE NE, Section 13-6-7, Sasakwa Pool, drilled to 3,012 feet, plugged back to 2,964 feet and made 40 bbls. No. 9 Bates, NE cor., Section 13-6-7, flowed 1,600 bbls. from Wilcox sand 4,149-64 feet. No. 10 Bates, NE cor., Section 13-6-7, has been completed for 2,400 bbls. in Wilcox sand 4,190-4,207 feet. Magnolia Petroleum Co.'s No. 1 Reed, NE cor. SE NW, Section 31-6-8, is pumping 123 bbls. from sand 2,642-84 feet. Mid-Continent Petroleum Corp.'s No. 1 Taloke, SE cor. NW, Section 6-6-6, is dry and abandoned at 3,307 feet. Harris and others' No. 3 Harjoche, SE cor., Section 8-6-6, has been completed for 1,275 bbls. in sand 2,850-2,907 feet. No. 5 Harjoche, NW cor. SE SE, Section 8-6-6, is dry and abandoned at 2,966 feet. No. 6 Harjoche, SW cor. NE SE, Section 8-6-6, has been abandoned at 3,040 feet. McCulloch Oil Co.'s No. 1 Snyder, SE cor. SW NE, Section 8-6-6, made a 30-bbl. well in sand 2,840-45 feet. Magnolia Petroleum Co.'s No. 3 Reed, NW cor. SE, Section 13-5-7, is producing 210 bbls. from sand 2,860 feet after plugging back from 4,293 feet. No. 2 Parney, SW cor. SE SE, Section 14-5-7, made 120 bbls. in Wilcox sand 4,145-55 feet.

Stephens County

Pandem Oil Corp. is erecting the rig for No. 1 Pielsticker, SE cor. NE SE, Section 5-2s-8w. George Pace and others' No. 2 Wilson, NE cor. SW NW NE, Section 20-2s-7w, is drilling at 900 feet. Magnolia Petroleum Co.'s No. 1 McClure, NE cor., Section 19-1s-8w, has been abandoned at 2,320 feet. Pace and Texhoma Oil Co.'s No. 7 Houston, NE cor. SW NE SW, Section 2-2s-8w, has been abandoned at 2,712 feet. Magnolia Petroleum Co.'s No. 10 Peck, SE cor. NE SW NE, Section 13-2s-8w, is a dry hole at 2,190 feet.

Wagoner County

J. McCutcheon and others' No. 1 Roberts, CWL E half NE SW, Section 9-19-16, is a machine. Dalls Guiger's No. 2 Roberts, SE cor. NW SW, Section 18-19-16, has been abandoned at 851 feet. No. 3 S. Roberts, NW cor. SW SW, Section 18-19-16, is a dry hole at 849 feet. No. 4 S. Roberts, C SW, Section 18-19-16, has been abandoned at 848 feet. No. 5 S. Roberts, SE cor. SW SW, Section 18-19-16, is a dry hole at 853 feet. Western Drilling & Equipment Co.'s No. 4 A. Barnett, C W half NE, Section 34-18-17, has been completed for 309,000 feet of gas in sand 825-55 feet. Mack Drilling Co.'s No. 1 Daniels, C SE NW, Section 25-16-16, is a dry hole at 1,256 feet.

FIRE EQUIPMENT REDUCES HAZARDS

(Continued from Page 42)

class mechanical condition. Slippage tests ought to be conducted at frequent intervals, preferably every four months if the pump is seldom used. If this test shows a slip greater than 6 or 7 per cent, the pump should be overhauled immediately. Now, assuming that the pump is in A-1 condition, are the mains and laterals capable of withstanding the pressure? Due to the alkilinity of many soils, underground lines are subjected to corrosion and must, therefore, be inspected and tested from time to time. It is wise to test hydrostatically all foamite as well as water lines with the maximum operating pressure at least once a month.

It is also important that the hydrant valves be kept in easy working condition and the threaded hose connections on the hydrants be clean, bright and free from rust. Some form of protection over the threads, such as grease or a covering cap is a good investment. The hose threads should conform to those in use by the nearest large city fire department so as to enable the use of their equipment if necessary. Hydrants should be so located that each and every tank, still, agitator, separator, loading rack, oil pump house and building where oil is handled or stored can be reached from at least one hydrant without using an excessive length of hose. They should be placed at such other points as may seem necessary due to local conditions. Then after the hose is attached to the hydrant, will it withstand the subjected pressure? Frequent testing of all refinery hose with water pressure will determine this point.

Essential Precautions

Now that the chemicals have successfully reached the fire, are they of the proper strength to produce the best expansion and thus give the desired result? There are just two ways to extinguish fire. One is to cool the material below its burning point, which is usually accomplished by the use of water. The other method is to smother the fire by cutting off its supply of oxygen. Water, steam, and ordinary chemicals have little or no effect on inflammable liquid fires. Too often water adds its own share to the damage of property by spreading the burning liquid over a wide area. This latter is accounted for by the fact that most inflammable liquids are lighter than water. Instead of being extinguished by an application of water or weak chemical solutions consisting chiefly of water, they float on water and continue to burn. For this simple reason, not generally understood, such "extra hazardous" fires cannot be cooled out, by wetting, but must be smothered out by cutting off their supply of oxygen. In order to completely cut off this supply it is essential that a blanket be formed by the uniting of the acid and basic solutions. Weak solutions, strong solutions, one weak and one strong, or any variation whatsoever, will not produce the best results. Hence, solution storage tanks should be agitated once each week and samples taken for the purpose of testing the expansion properties. If the volumetric expansion of the mixture falls below seven, the solutions should be checked separately for correct gravities. Solutions in storage will lose their strength with duration of time, making it necessary to continually add chemicals to the storage tanks.

Smothering Fires

In addition, the foamite method of controlling fire absorbs heat and reduces smoke. The operator can face a more advanced fire and not fear intense heat and choking smoke. The success of the foamite method of smothering out fires under a blanket of firefoam created a genuine need for apparatus that could produce more foam than foamite extinguishers and engines and eliminate the necessity of mixing and separate storing of the two solutions.

The portable foamite foam generator is designed to back up the smaller but necessary "first aid" foamite equipment, and can be put into instant service with a larger sized stream of firefoam, the supply of which is only limited by the availability of water and the foamite generator powder. The operation of this generator is simplicity itself. Its lightness and compactness permit its being carried by one man and all that is necessary is to set it up at a distance not greater than 150 feet from the fire. The rate of flow of water through the generator automatically controls the drawing of the right amount of powder into the stream.

But before going farther, let me ask one question. This equipment cannot operate by itself; therefore, do we have a well-rounded and well-organized force who know exactly where these portable mixers are located, how they are to be connected to the hydrants, and if there is sufficient powder on hand or readily accesible to combat a fire of any size. We must bear in mind that in every plant, however small, there should be a

well-trained squad consisting of the regular employes that can capably handle this equipment for maximum efficiency. But all burden must not fall upon this particular group of men but they should be the ones who should start the ball to rolling. Then by the assistance of other employes we might picture this large force efficiently using this valuable equipment for the purpose for which it was designed.

Water System

Similar rules apply to the high pressure water system. Sufficient pumping capacity should be calculated, based on the oil storage capacity of the plant. The supply of water should last for at least 24 hours, continuous pumping. If your plant is in a section of the country where electrical storms are frequent and where electrical power is used for driving fire pumps it would not be wise to have all of them electrically operated. Assuming that half of the fire pumps are driven by electric motors, assuring quick starting, then the remaining pumps should be driven by either steam, gas engines, oil engines or gasoline engines.

All fire pumps should be located in detached, non-combustible structures or in a separate room of fire-resistive construction, with standard cut-off from all other portions of the building. The location of fire pumps under condenser boxes in oil refineries is not considered good practice.

All tanks, except those containing paraffin, lubricants or oils of a non-gaseous nature, should be equipped with water spray on the roof and water curtains. All warehouses, wood-working establishments, docks and such other places as it may seem advisable, should be protected with sprinkler systems. These may be either automatically or manually operated, as local conditions may dictate, and should conform as closely as possible to the requirements of the National Board of Fire Underwriters.

All hose should be 2½-inch in size, and should be four-ply rubber covered, rubber lined, of an approved brand suitable for 200 pounds pressure. It should be wound single on the hose reels and hose reels ought to have a capacity of 250 feet of hose. An ample supply of hose is essential. The use of stationary play nozzles for special locations such as docks, on the tops of high structures, and the like, is strong recommended. Too much equipment can do no harm while an insufficient or a detective system may result disastrously.

Steam Protection

As for steam protection—steam of sufficient quantities is oftentimes of great help. Steam hose and hose connections should be found on all equipment. It serves as an easy, inexpensive and quite efficient means of caring for small fires and in preventing flashes where minor leaks develop. It is also good practice to provide all pump rooms, receiving houses, and all outside buildings and shops with steam smothering lines. Steam smothering mains and laterals should not be buried or lie directly on top of the ground, but should rest on blocks or have some form of overhead support. It is needless to say, that all steam lines carrying a steam pressure should be well insulated.

Then, let us consider the importance of gas gathering lines and gas-tight roofs on tanks storing light oils and especially those containing any great amount of hydrogen sulphide. The control and recovery of gasoline vapors in tank farms is closely related to the production of natural gasoline and at the same time keeps these vapors from saturating the surrounding atmosphere. Gas-tight roofs are undoubtedly a good investment in reducing evaporation losses and in cutting down the hazard connected with escaping vapors. But I must emphasize the real necessity of current inspections to be certain that the roofs or the part of the tank in the vapor area does not corrode through. We all know that iron oxide forms on all metal exposed to the weather.

In storing light volatile oils from West Texas crudes where hydrogen sulphide gas is found in large quantities, a chemical action takes place that should be noted. Ferric sulphide (Fe_2S_3) is obtained by gently heating a mixture of iron and sulphur or by the action of sulphuretted hydrogen on the sesquioxide below 100°. It also combines with other sulphides of iron. The hydrated sulphide is rapidly decomposed by air and in the absence of air undergoes spontaneous decomposition into ferrous sulphide and iron disulphide. The anhydrous sulphide is pyrophoric (self igniting) if suddenly brought into contact with air. Hence, we can see what happens when a tank roof rusts through and air is allowed to enter. Then, how often should tank roofs be inspected? That depends entirely upon the condition of the roof. If a roof has been in service for some period of time and its condition is in doubt—give it special attention.

In concluding, the writer wishes to emphasize the importance of adequate fire fighting equipment. After the installation of this equipment, it is just as essential to keep it in first class condition. This can only be accomplished by frequent and regular inspections and repairs made accordingly. Some inspection department should be maintained in each and every refinery regardless of size. The cost of operating such a division is very low when compared with the value of equipment protected. In addition, it is highly recommended to have some outside party make periodic inspections. This plan is carried out extensively by the Standard Oil Co. of New Jersey. Then with all systems in good working condition, the personnel must have a wide knowledge of their uses to handle efficiently the various systems to the best possible advantage.

PANHANDLE FIELDS

(Continued from Page 70)

Glasscock made 600,000 feet of gas at 1,735-50 feet. Phillips Petroleum Co.'s No. 1 Sikes made 500,000 feet of gas at 1,942-48 feet and was drilled to a total depth of 1,970 feet.

PANHANDLE COMPLETIONS

Week ending March 15

Gray County

Herragon Oil Co.'s No. 1 Bradford, located 330 feet north and 990 feet east of SW cor., Section 123, Block B-2, was drilled to a total depth of 3,315 feet, was plugged back to 2,980 feet, shot with 410 quarts at 2,900-80 feet with no results and had an initial production of 15,000,000 feet of gas at 2,475-2,540 feet. Travis and others' No. 1 Webb-B, located 330 feet north and west of Section 61, Block 25, H.&G.N.R.R. Survey, was drilled to a total depth of 2,641 feet, was shot with 60 quarts at 2,611-31 feet and had an initial production of 125 bbls.

Wheeler County

Murchison-Fain's No. 7 Close had an initial production of 44,000,000 feet of gas at 1,647-1,792 feet.

WICHITA DISTRICT COMPLETIONS

Week ending March 15

Archer County

Pace & Bullington's No. 1 Wilson was dry and abandoned at 1,650 feet. Cullum and others' No. 6 Fall County fee had an initial production of 33 bbls. after having been shot with 50 quarts at 1,125-41 feet. Flowers & Barkley's No. 1 Rogers was dry and abandoned at 1,400 feet. Golding & Cochran's No. 3 Harmel had an initial production of 15 bbls. at 1,448-58 feet. H. Hines' No. 1 Morrison was dry and abandoned at 1,406 feet. J. H. Massie's No. 1 Richardson had an initial production of 227 bbls. at 1,367-72 feet. Pandem Oil Corp.'s No. 6 Young had an initial production of 100 bbls. at 1,400-09 feet. Panhandle Oil Co.'s No. 13 Prideaux had an initial production of 1½ bbls. at 579-604 feet. Sun Oil Co.'s No. 5 Brown had an initial production of 52 bbls. at 1,162-70 feet.

Cooke County

Danciger Oil & Refining Co.'s No. 1 Mount was dry and abandoned at 1,585 feet. T. F. Hunter's No. 1 Dennis was dry and abandoned at 1,751 feet. A. C. Hill's No. 1 Gibson was dry and abandoned at 1,504 feet. Kewanee Oil & Gas Co.'s No. 10 Timmis had an initial production of 135 bbls. oil and 215 bbls. water at 1,161-57 feet. Ratford and others' No. 1 Jones was dry and abandoned at 2,016 feet. United Producers Co.'s No. 1 Johnson was dry and abandoned at 1,690 feet.

Clay County

J. Art and others' No. 1 Morgan Jones made 2,000,000 feet of gas, 290 pounds rock pressure at 1,797-1,802 feet.

Erath County

Associated Producers Co.'s No. 3 Cary had an initial production of 320,000,000 feet of gas after having been shot with 10 and 30 quarts at 3,280-3,390 feet.

Jack County

Buttram Petroleum Co.'s No. 2 Cullen-C had an initial production of 15 bbls. at 2,015-25 feet. Republic Production Co.'s No. 2 Ezell had an initial production of 75 bbls. at 3,197-3,219 feet.

Young County

The Banner Co.'s No. 6 Davis had an initial production of 15 bbls. at 895-908 feet. P. Fowler and others' No. 3 Hill had an initial production of 50 bbls. at 1,019-35 feet. E. B. Lawson's No. 4 Leberman had an initial production of 15 bbls. after having been shot with 5 quarts at 878-84 feet. R. L. Lowery's No. 2 Atcheley was dry and abandoned at 1,013 feet. Madden & Hunt's No. 4 Kunkel had an initial production of 145 bbls. at 1,118-45 feet. Perkins & Butler's No. 3 Whitt was dry and abandoned at 1,070 feet. Perkins & Cullum's No. 1 Rachwig was dry and abandoned at 1,216 feet. E. H. Sharp's No. 1 Doyle was dry and abandoned at 1,102 feet. E. H. Sharp's No. 2 Edwards had an initial production of 28 bbls. at 1,205-11 feet. The Texas Company and Consolidated Oil Co.'s No. 1 Carpenter had an initial production of 22 bbls. at 891-96 feet. Dyer and others' No. 2 Epstein was dry and abandoned at 2,720 feet. Henryette Drilling Co.'s No. 1 Lynn was dry and abandoned at 2,718 feet.

Wichita County

Hi-Land Oil Co.'s No. 4 Crudup had an initial production of 24 bbls. at 1,800-1,913 feet. Grayce Oil Co.'s No. 1 Kemp & Kempner had an initial production of 15 bbls. oil and 4 bbls. water at 1,769-71 feet. Hamilton & Sheldon's No. 1 Robinson was dry and abandoned at 2,072 feet. Hobbs Oil Co.'s No. 2 Munger had an initial production of 24 bbls. at 1,757-61 feet. H. Hobb's No. 2 Warren location was abandoned.

REVISE SHELL STILLS FOR DISTILLATE RERUN DUTY

(Continued from Page 46)

streams. The tower is tapped at two upper sections for the removal of a light furnace oil distillate. The bottoms or residuum from this last still is a light gas oil which is withdrawn through an exchanger where it heats the incoming distillate as previously mentioned. The first four stills are operated with an oil temperature maintained near 330° F. and the fifth near 340° F.

The simplicity of the operation is readily apparent but the design has several other advantages. In the accompanying picture the exchanger sections are shown at the base of the tower instead of on top the tower to minimize the cost of pumping and repairs.

The water circulating system is unique also in that fresh water is supplied to the condenser boxes which do the final cooling of the overhead stream. From these boxes the water is pumped over the respective tubular exchanger or condensers, the box serving as a surge tank for the supply. The operation of the unit has been simplified further by the use of a complete system of Brown instruments which records the flow of distillate through the unit as well as the various still temperatures, tower temperatures, steam consumption, pump pressures, etc.

To decrease corrosion, a naphthenic soap, containing excess caustic, is pumped into the tower with the distillate. The soap is a greenish-black, oily liquid and is a waste product from the lubricating oil treating plant. It has been found to be more satisfactory than caustic or similar reagents because it does not deposit as a solid but mixes with the oil and is used in such small quantities its presence is lost in the residue oil. In addition, its use apparently makes the overhead gasoline easier to sweeten. The amount of the soap added is determined by titrating the condensate from the overhead streams.

Actual Results

In portraying the actual operation of the unit in greater detail, the results of a 24-hour test run made shortly after the unit was completed are given here. During that time 13,031 bbls. of 55.4 gravity, doctor sweet distillate, made up of 85 per cent cross-pressure distillate and 15 per cent naphtha from the coking operation was charged. This mixture showed the following results on an Engler distillation:

Initial point	103° F.
10 per cent	174° F.
20 per cent	217° F.
30 per cent	257° F.
40 per cent	281° F.
50 per cent	309° F.
60 per cent	334° F.
70 per cent	356° F.
80 per cent	380° F.
90 per cent	410° F.
Endpoint	451° F.
Recovery	97%

This had been previously acid treated and doctor sweetened and when rerun produced 81.5 per cent gasoline, 9.8 per cent furnace oil, 5.7 per cent gas oil and the loss was 3 per cent. This represents a gross distillation loss here since the vapors are processed through recovery system so the final loss will be somewhat less than 3 per cent.

Tests on the composite sample of the five gasoline streams showed the following results:

Gravity	59.2
Initial point	103° F.
Per cent over at 212° F.	25%
Per cent over at 221° F.	38%
Per cent over at 257° F.	52%
Per cent over at 284° F.	58%
Per cent over at 356° F.	92%
Endpoint	388° F.
Recovery	97%

The overflow material from the first four stills going to the fifth still for a final trimming showed the following test results:

Gravity	40.2
Initial point	368° F.
Per cent over at 392° F.	38%
Per cent over at 450° F.	90%
Per cent over at 500° F.	95%
Per cent over at 550° F.	96%

The furnace oil produced had a gravity of 41.0, was 2 color, had an initial point of 366° F. and an endpoint of 459° F. This material is blended with a lower gravity distillate made from crude to make a finished furnace oil of approximately 39 gravity and 150° F. to 160° F. closed cup flash.

During the test and under the present schedule of operation, the reflux pumpin over the fifth tower is not being used and for this reason the fractionation is not as complete as is possible to effect. However, it has been found that by allowing a portion of heavier fraction to go into the furnace oil that a material improvement is noted in the color stability of the gasoline and at the same time the quality of the furnace oil is improved. During this test runs of 1,400,447 cubic feet of 950 B.t.u. gas were consumed and approximately 450,000 pounds of exhaust steam at 20 to 25-pound pressure.

HOUSTON OIL ELECTION

HOUSTON, Tex., Mar. 15.—At the annual meeting of the stockholders of the Houston Oil Co. the following directors were unanimously elected: Holman Cartwright, San Antonio; E. H. Buckner, Houston; Samuel C. Davis, St. Louis, Mo.; S. W. Fordyce, St. Louis, Mo.; David Hannah, Houston; George A. Hill, Jr., Houston; T. M. Kennerly, Houston; B. H. Lang, St. Louis, Mo.; George Mackubin, Baltimore, Md.; Thomas S. Maffitt, St. Louis, Mo.; Ethan A. H. Shepley, St. Louis, Mo.; A. W. Standing, Houston; L. S. Zimmerman, Baltimore, Md.

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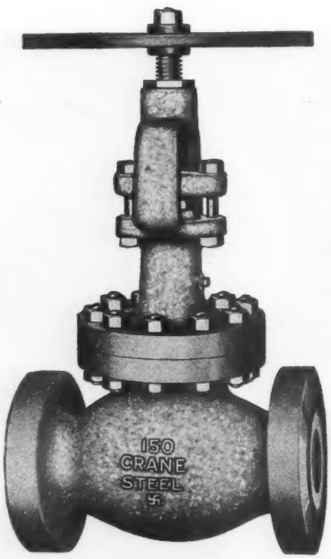
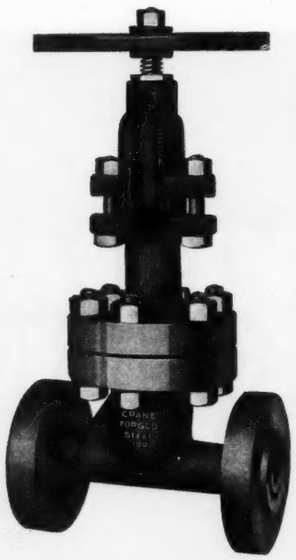
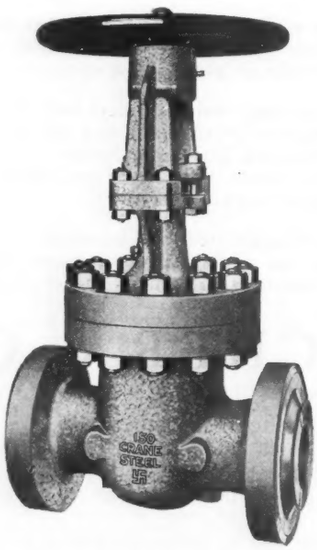


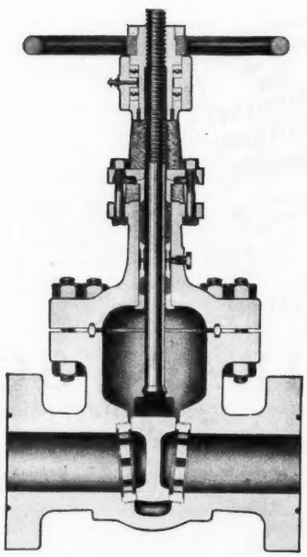
Series 150 Cast Steel Globe Valve No. 389 X. For hot oil pressures of 1350 lbs. at 900° F. Seat and disc of Exelloy.



Series 150 Forged Steel Globe Valve. For oil pressures up to 1350 lbs. at 900° F. Flanged ends. Seat and disc of Exelloy.



Series 150 Cast Steel Gate Valve No. 87 X. For oil pressures of 1350 lbs. at 900° F. Flanged ends. Seat and disc of Exelloy.



Cross section showing interior construction of a Special Series 150 Cast Steel Gate Valve for Oil Service. For 1350 lbs. at 900° F. Seat and disc of Exelloy.

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But let us send one of the Crane specialists in valve engineering, stationed at strategic points throughout the country, to tell you about these and other Crane cast and forged steel, ferrosteel, brass, and iron valves. These men will co-operate with oil and gas engineers to plan economical and dependable valve equipment for any pressures, temperatures, and services.

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Quiet Week in Central West Fields

Fair Well in Hardin County, Ohio. More Activity Promised in Tiffin Field. Summary of Development in Indiana

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Mar. 17.—Development work is slack in three divisions of the Central West Field, Lima, Indiana and Illinois, while Central Ohio remains active as usual, owing to the hunt for gas to supply the various cities over the State, and the completion of an occasional good oil producer.

In the old Lima Field of northwestern Ohio, a well is reported making a nice showing in McDonald Township, Hardin County, west of Kenton in what is known as the Roundhead Field, where the Roundhead Oil & Gas Co. has drilled in No. 8 on the Erwin Hites, estimated at better than 50 bbls. of oil and about 250,000 feet of gas. This is the first completion in this county for a long period and may bring about additional work.

Drilling is being maintained in the Tiffin Field of Seneca County, but only one completion was reported for the week, being Bacon & Wade's test, 1,000 feet from the south line and 200 from the east line of the J. F. Summers, SE Section 35, Liberty Township, which produced an initial of 1 bbl. Trenton was topped at 1,479 feet and it was drilled 187 feet in the Trenton to a total depth of 1,666 feet. Several other wells are nearing the Trenton formation in the same field.

Tiffin Field

For years the Sun Oil Co. was among the largest operating concerns in the Tiffin Field, but a few years ago sold its wells and left the field. This company will again enter the county, as it has secured a block of around 2,000 acres in Hopewell Township and locations are staked and work already started to test it. This company has also added an additional lease to the block, which is on the Harry W. Schetter farm, in Liberty Township, same county. Among the leases taken by the Sun Co. in Hopewell Township are Jacob Welly, William C. Wade, Martin Steinmetz, Harry Shumaker, Pius S. Peecher, Elmer Ogle, Mary O. McElheny, William F. Martin, Gustave Kummer, John H. King, Nicholas Kieffer, Dennis Hostler, Thomas F. Haugh, Rollo R. Haugh, three farms of Lorenzo D. Creeger, Henry Brickner, Joseph Bihn and Frank Anderson.

Wells now drilling in Seneca County are: In Liberty Township, W. J. Poyser and others' No. 4 Milo Saul, Section 36; Fossum and others' No. 1 Otto and Charles Ewalt, same section; C. L. Messer and others' No. 1 Ida M. Rosenberger, same section, and O. L. Williams' No. 1 George Frederick, Section 26. In Jackson Township, the Kansas Oil & Gas Co. is drilling No. 2 C. P. Dillon, Section 1. In Seneca Township, Cameron & Son's No. 1 Jacob Truth, 5 miles northeast of Carey; W. C. Parmalee's No. 1 David Zeis, Section 27, and Keith & Salladay's on an unknown farm, Section 33. In Hopewell Township, J. H. Murphy & Sons are working on the S. Wolfe, Section 1, and in Bloom Township, C. L. Williams is reported drilling a wildcat on the P. Stuckey, Section 32, Bloom Township.

The wildcat of J. H. Williams of Pittsburgh, on the Catherine Walthers farm, Section 5, Liberty Township, Crawford County, is reported shut down at 2,580 feet and may develop into a duster.

CENTRAL OHIO

A slump in completed work is shown for the week in the Central Ohio Field, owing to weather conditions to a large extent, but it will soon be back to normal. The week's figures are 16 completed wells, of which 6 were oil producers with an initial of 398 bbls., 6 dry holes and 4 gas wells, the new work being 8 locations and 19 wells started spudding, for a total of 27.

Some of the shallow wells that produced from various formations above the Clinton lime formation will eventually be drilled to the lower sands. In Brown Township, Knox County, the East Ohio Gas Co. is drilling deeper No. 1 on the Walter Workman, Lot 37, from the Berea to the Clinton, and the Ohio Fuel Gas Co. is drilling No. 2-1,546 on the B. B. Workman, Lot 38, same township, that showed production in the Berea sand is also being drilled to the Clinton formation.

In Ashland County, the Ohio Fuel Gas Co.'s No. 1-4,986 on the G. E. Kauffman, Section 21, Orange Township, is a dry hole, as no sand was found. Same company is drilling No. 1-5,046 J. T. Smith, Lot 68, Sullivan Township. Robinson and others' No. 6 James McFadden, Section 4, produced 2 bbls., and same parties are drilling No. 3 John S. Moffett, Section 30, Vermillion Township.

In Lorain County, Ridgeville Township, the Ohio Fuel Gas Co.'s No. 1-4,979 Leo Thome, Lots 30-31, was dry, only 1 foot of sand being found. Same company is drilling No. 1-5,034 Ed P. Wilhelmy, Lot 31, same township.

In Wayne County, Paint Township, the Ohio Fuel Gas Co.'s No. 1-4,906 D. J. L. Miller, Lots 20 and 21, was dry in the Clinton, where 29 feet of the lime was drilled through. Hulse & Kundtz are drilling on the W. A. Firestone, Section 19, Chester Township. Ohio Fuel Gas Co. made a location for No. 1-5,068 Glen Fuhrman, Section 1, Congress Township.

In Holmes County, Hardy Township, the East Ohio Gas Co.'s No. 3 C. L. Sterling, Lot 27, is reported with an initial of 165 bbls. from two pay sands, the first showing from 3,277 to 3,327 feet and the second from 3,381 to 3,427 feet. Ohio Fuel Gas Co.'s No. 2-3,039 J. A. Baker, Lot 18, Prairie Township, which had a light showing of oil, has been given up as a dry hole. Same company is drilling No. 1-5,019 Desbora Campbell, Section 8, Riple Township.

In Ashtabula County, Schaeffer Brothers made a location for a second test on the Jess L. Evans, Lot 59, Conneaut Township.

In Knox County the Upham Gas Co. is drilling No. 9 Rebecca J. Kunkle, Lot 5. Same company's No. 3 J. T. Workman is showing for a fair gas well. Ohio Fuel Gas Co. made a location for No. 2-5,067 J. A. Reed, Lot 11, and is drilling deeper its No. 1-1,547 William Meyers, Lot 38, same township.

In Coshocton County the Ohio Oil Co. has abandoned the second well on the Otto Aiken, Section 34, Clark Township. Ohio Fuel Gas Co. abandoned No. 1-4,888 Lester Pretzeus, Section 6, Crawford Township. Bell Brothers are drilling on the Martin Stockum, Section 9, Tuscarawas Township.

Summitt County

In Summitt County, Coventry Township, F. A. Brendall and others are drilling on the Cyrus Miller, Section 13. In Green Township same parties made locations for No. 1 A. G. Keck, Section 7, and No. 1 A. H. Cummins, Section 6.

In Licking County, Perry Township, Hope Construction & Refining Co.'s No. 6 Sarah Rector, Section 9, produced 11 bbls. initial from the Brea sand. Whitehill Oil Co. has a light gas well in No. 4 Ira A. Rine, Section 3. In Fallsburg Township the Ohio Fuel Gas Co. is drilling No. 1 Wallace Davidson, Section 13, and has made a location for a second test on the same farm; also made a location on the A. L. Gruber, same section. Wittmer Properties, trustee, made a location on the Amos VanWinkle, same section.

In Muskingum County, Clay Township, Nay and others' No. 1 William McDonald, Section 3, produced an initial of 68 bbls. from 3,448-87 feet, total depth 3,489 feet. William Kline and others' No. 2 on Ramsbottom Pottery land, same section, produced an initial of 52 bbls. Kachelmacher Estate is drilling a second well on the Elk Coal Co. property, same section, and also drilling No. 1, same farm. Noah Andrews and others are drilling No. 3 on the State Brick Plant, same section, and John Wallsmith is drilling No. 2 E. H. Norman, same section. Ohio Fuel Gas Co. is drilling No. 1-5,017 Charles Johnson in the third quarter of Perry Township. The Athey Co.'s No. 2 Nellie V. Moorhead, Section 3, Wayne Township, is a fairly good gas well in the Clinton lime. Top of lime found at 3,824 feet, pay sand from 3,846-51 feet, total depth 3,852 feet. Abe Snider and others' test on the Tom Bride, Section 34, Newton Township, is reported dry from 3,502-60 feet. Daily Oil Co. is drilling No. 1 Charles J. Weaver, Section 16, Brush Creek Township, and the Wehrle Gas Co. made a location on the G. E. Wells, Section 7, Licking Township.

In Athens County, Ames Township, the Ohio Fuel Gas Co.'s No. 3-4,953 Robert G. Browley, fractional section, is an average gas well in the lower Berea sand from 1,397 to 1,416 feet, total depth 1,428 feet. Same company is drilling No. 6-4,969 L. B. Glazier, Section 8, same township. Fairfield Oil & Gas Co. has an average gas well on the Sam Jeffers, in fractional Section 34, Lodi Township. Ohio Fuel Gas Co. is drilling No. 2-5,066 Ben Barnhart, Lot 3, Carthage Township.

Vinton County

In Vinton County the Co-operative Oil Co. made a location for No. 2 Robert Nelson, Section 4, Knox Township.

In Tuscarawas County, Washington Township, the Gordon Oil Co.'s second test on the Dolly Huffman, Lot 35, is credited with an initial of 100 bbls. from 3,615-22 feet, total depth 3,623 feet. Federal Oil & Gas Co. is starting a test on the Lewis Reichman, Lot 42, Goshen Township, same county, and the Traders Oil & Gas Co. is drilling on the Quillan-Crawford, Section 21, Oxford Township. Ohio Fuel Gas Co. abandoned its location for No. 1-5,065 Leslie Little, same section.

In Fairfield County, Richland Township, James Crawford has a dry hole on the Owen and Sarah Smith, Section 16, in the Clinton from 2,540-70 feet, also in the Medina from 2,570-84 feet. Merle Myers and others are drilling on the S. M. Williamson, Section 16, Rush Creek Township.

In Guernsey County, Wheeling Township, Ohio Fuel Gas Co. is drilling No. 2-5,040 Simon Umstatt, Section 2.

In Belmont County, Union Township, Frank Stranges and others are drilling No. 8 Sheperd Wilson, Lots 21-27.

In Morgan County, Marion Township, the Williams Brothers have a fair gas well in No. 7 Arthur Smith, Lot 12, in the Salt sand from 770 to 810 feet. Ohio Fuel Gas Co. has an average gas well in No. 3-4,999 W. B. Miller, Section 16, in the lower Berea sand from 1,585 to 1,607 feet, total depth 1,612 feet. Same company's No. 2-5,033 W. P. Chappelear, Section 26, Malta Township, is a fair gas well in the lower Berea from 1,570-96 feet, total depth 1,598 feet.

East Ohio Gas Co. found a light pumper around 3 bbls. in No. 4 on the Jess Elliott farm, Section 35, Brown Township, Vinton County. Hope Construction & Refining Co. has what shows for a 2-bbl. pumper in a second test on the Samuel Dass farm, Section 3, Knox Township, same county, and Robinson & Ball have a light gas well on the Theodore Uesinger farm in Franklin Township.

William Kline and others' fourth well on the Ramsbottom Pottery land, Section 3, Clay Township, Muskingum County, is reported with an initial of 75 bbls.

Bishop, Deetry and others' No. 3 James B. Watson farm, Franklin Township, Licking County, is reported good for around 3 bbls. Midland Oil Co.'s No. 2 G. M. Bowers, Section 13, Bowling Green Township, same county, showing for 30 bbls. initial.

INDIANA

Six completions were reported from the Indiana Fields. The southern end of the State does not look so inviting as it did some time ago, especially that across the Ohio River north of the rich Owensboro Field of Western Kentucky. In Perry County, John H. McClukin and others' test on the Andrew Lucke, Section 31, Anderson Township, was dry at 980 feet, and Hitchen & Robinson have one of the same kind on the Doc Schneider farm, Section 22, Troy Township, same county. In Tobin Township, same county, Theo Seits is drilling a test well and Conyers, Roetzel & Bugg are drilling No. 2 Frank Delaissee, Section 25, Clark Township, about 1,400 feet west of No. 1, same farm.

Pendleton Natural Gas Co. brought in a fair gas well in No. 1 on the Taylor Brown farm, in Madison County.

In Pike County, Clay Township, F. B. Hillis and others, sometimes called the Illpava Oil Co., drilled in the northwest corner of the N. Robeschieb, SW Section 31. Sand was topped at 1,297 feet, total depth of well, 1,309 feet, and produced an initial of 30 bbls. In Madison Township, same county, William Bell and others' No. 2 Berkley Hill, Location 31, produced an initial of 30 bbls. from the Oakland City sand at 1,314 feet. F. B. Hillis and others are drilling No. 4 on the W. H. Lindy farm, in Clay Township.

In Washington Township, Gibson County, the Ohio Oil Co. abandoned No. 1 John Shoultz, SW, Section 17, and Nos. 2 and 3 George Colvin, Section 6, same township.

In the old Trenton Rock area of northeastern Indiana, Scoofakes & Heflin's No. 5 Clark Stanley, Section 34, Wabash Township, Adams County, pumped an initial of 30 bbls. at a depth of 1,034 feet, which is Trenton Lime.

In Hancock County, Charles Titus and others drilled in a light gas well on the M. Overman farm, a half mile south of the town of Wilkerson.

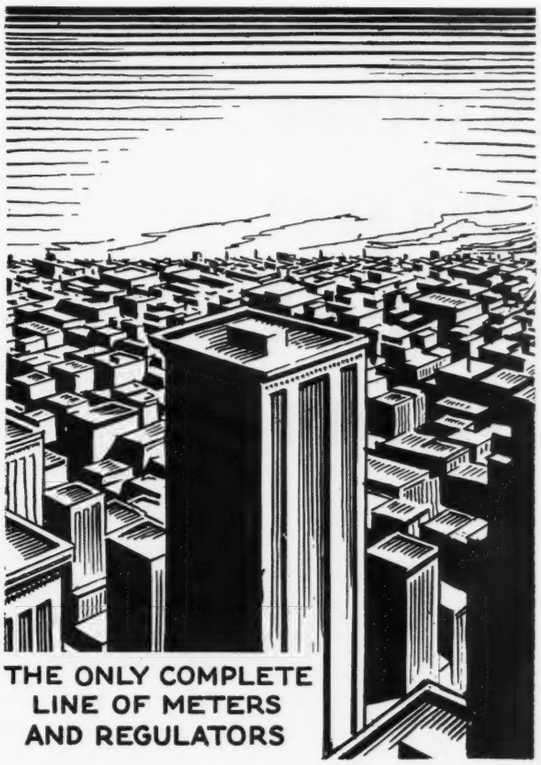
Indiana Oil and Gas News

Compiled by Paul F. Simpson, State Gas Supervisor, Department of Conservation, Division of Geology, Indianapolis, Indiana, by counties:

Adams County—Scoofakes & Heflin completed their fifth well on the Clark Stanley farm in Section 34, Wabash Township. It produced an initial of 30 bbls., 1,034 feet.

Crawford County—A test is being started on the Perry Byrum farm at the south edge of Milltown, which is expected to go 2,000 feet. Speed and others have leased about 10,000 acres surrounding this in Whiskey Run Township, and

(Continued on Page 119)



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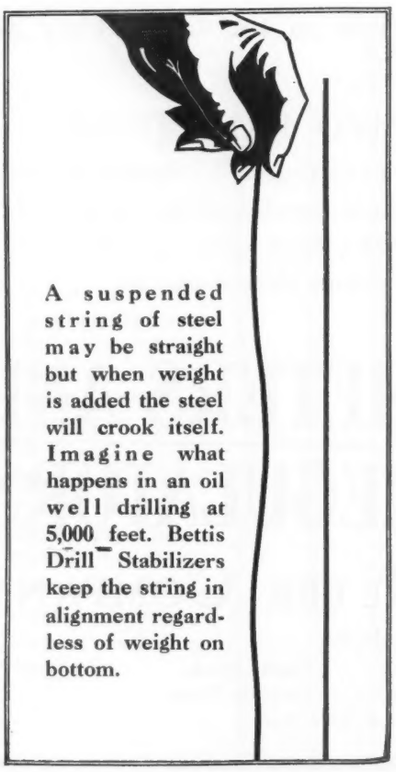
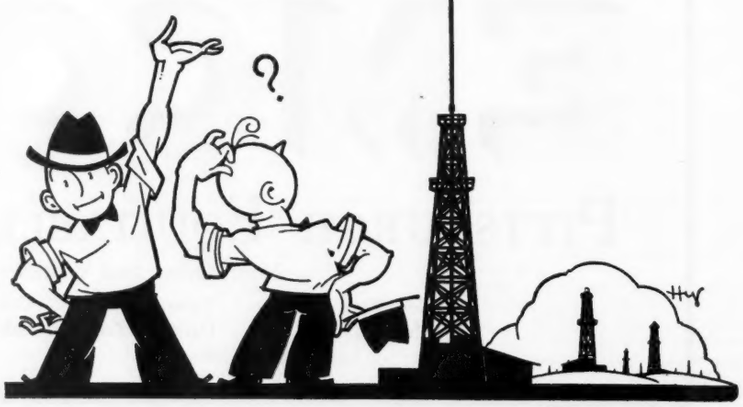


A suspended string of steel may be straight but when weight is added the steel will crook itself. Imagine what happens in an oil well drilling at 5,000 feet. Bettis Drill-Stabilizers keep the string in alignment regardless of weight on bottom.

5,000 feet of pipe is a long, long string. It needs support all the way from the grass roots to the drill.



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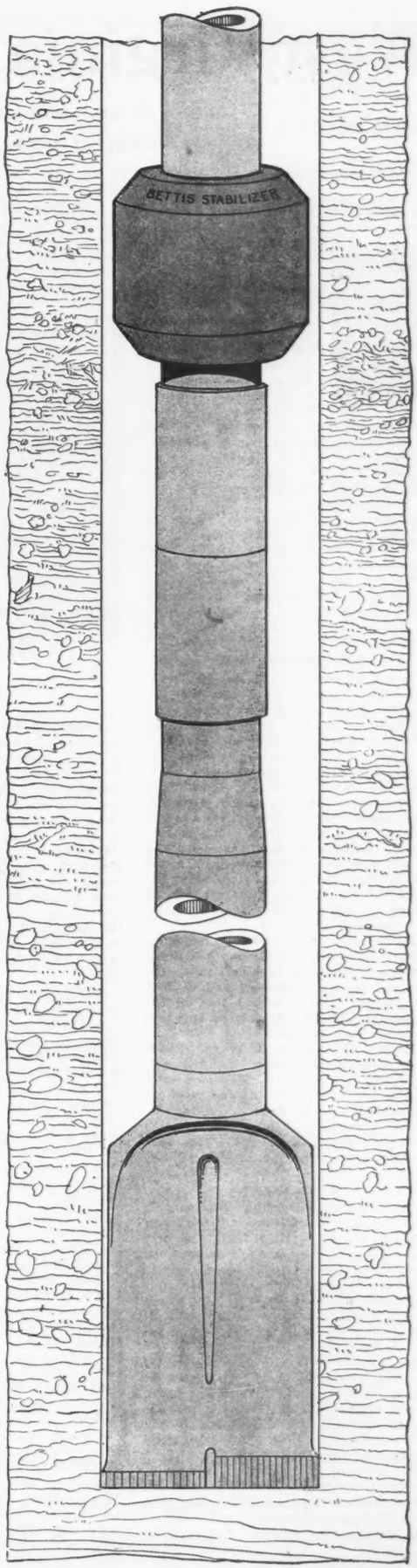


Illustrating Bettis Drill Stabilizer in position immediately above the collar.

West Virginia Lower Counties Get Play

Roane and Calhoun Most Active in Oil, Boone and Lincoln in Gas. Good Well in Muskingum County, Ohio

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., Mar. 17.—Development work in the eastern fields presented very few wells better than the average during the week. Fewer wells were completed and none important as to location. At the present time there is very little doing outside of defined limits. More leases are being surrendered than the acquisition of new ones. In some of the counties in the lower southwest in West Virginia more experimental work and starting than at any time in a great many months. Those that have been completed recently failed to find production.

In the oil producing areas, Roane and Calhoun Counties are the most active. In the gas areas, Boone and Lincoln Counties have the most work under way. If the new wells now drilling should find anything it will probably be gas. A few light gas wells have been completed in Raleigh County. Recently a test in Town district fell to the duster list.

SOUTHEAST OHIO

In the SE Section 5, Hopewell Township, Muskingum County, the Preston Oil Co. completed and shot in the Clinton sand a test on the F. R. Varber farm. It produced 159 bbls. the first 24 hours. This is the best producer for this month in southeast Ohio.

In the NW Section 3, Muskingum County, Clay Township, Adair, Lynch & Co. completed in the Clinton sand a test on the Nelsie Cox farm. It is a fair gasser. Drilling has been suspended and it will later be drilled deeper. In the NE Section 16, Richhill Township, the Atha Oil Co. completed a test on the Harry R. Elliott farm. It is a duster and has been abandoned.

In the deep sand territory in southeast Ohio, in the NE Section 13, Bowling Green Township, Licking County, the Midland Oil Co. completed and shot in the Clinton sand a second test on the George M. Bowers farm. It produced 30 bbls. the first 24 hours.

In the NW Section 3, Wayne Township, Muskingum County, the Atha Oil Co.'s test on the W. L. Morehead farm is a gasser in the Clinton sand good for 1,800,000 feet. At Zaleski, Section 35, Brown Township, Vinton County, the East Ohio Fuel Gas Co. has a very light pumper at No. 4 on the Jesse M. Elliott farm.

Perry County

In Reading Township, Section 12, Perry County, the Preston Oil Co.'s second test on the S. H. Saffell farm produced 20 bbls. the first 24 hours. In Rush Creek Township, Fairfield County, Murl Mayers is drilling on the Williamson-Stuart lots. In Section 16, Richland Township, Joseph Crawford is drilling in the top of the Clinton sand on the Samuel Smith farm.

In Harrison Township, Perry County, the Northern Development Co. has a 5-bbl. pumper on the S. W. Moore farm. Perry and Muskingum Counties are leading in operations at this time. In the two counties there are 17 test wells starting and drilling.

In Section 27, Hardy Township, Holmes County, the East Ohio Gas Co. got a producer that made 165 bbls. the first 24 hours after it was completed and shot in the Clinton sand. In the SE Section 17, Ward Township, Hocking County, the Preston Oil Co. completed and shot in the Clinton sand No. 1,320 on the Sunday Creek Coal Co.'s tract. It produced 65 bbls. the first 24 hours.

In the NE Section 13, Bowling Green Township, the Midland Oil Co.'s second test on the George M. Bowers farm produced 30 bbls. the first 24 hours.

In the NW Section 4, Harrison Township, Perry County, the Ohio Fuel Gas Co. has a 25-bbl. producer on the Oyla Moore farm. In Hardy Township, Holmes County, the Preston Oil Co.'s No. 5 on the D. C. Close farm is showing very little oil and will probably go into the discard list.

Holmes and Fairfield Counties

In Section 28, Hardy Township, Holmes County, the East Ohio Gas Co. has a gasser in the Clinton sand good for 1,000,000 feet on the Melissa Gamble farm. In the SE Section 16, Richland Township, Fairfield County, Joseph Crawford has a duster in the Clinton sand on the Owen Smith farm.

WEST VIRGINIA

In the West Virginia fields more gas wells than oil producers were completed. In Malden district, Kanawha County, the Ten-Mile Oil & Gas Co. completed in the Big Injun sand a gasser at No. 9 on the H. C. Dickinson farm. In Louden district, the Allegheny Gas Co. has a gasser in the salt sand at No. 4 on the Laidley-Bradford, Jr., farm.

In Scott district, Boone County, the Mountain State Fuel Co. has a gasser in the Berea grit on the Rome Prince farm. In Sherman district, a test on the J. W. Thompson and No. 36 on the Federal Coal Co.'s tract are both gassers in the same formation. In Scott district, Putnam County, the Sowders Oil & Gas Co.'s second test on the Pines-Moore farm is a gasser. In the same district, the same company has a gasser on the E. H. Morford farm. In the same district drilling has been suspended on the Thompkins Gas Co.'s lease. In the same district, Arbaugh & Hanley have shut down at a second test on the C. G. Bennett farm. McElroy & McElroy have shut down on the Rachel H. West farm.

In Lincoln district, Wayne County, the Wayne United Gas Co. has a gasser at No. 24 on its own property. On the same property, in Stonewall district, the same company has a gasser at No. 23. The same company has completed Nos. 29 and 33 and both are gassers.

In Town district, Raleigh County, Godfrey L. Cabot has drilled a test on the Beaver Coal Co.'s tract to a depth of 4,522 feet. It is a duster in all formations and has been abandoned.

Shooting Helps

In Henry district, Clay County, the Virginian Gasoline & Oil Co. drilled its test on the Mary D. Hanshaw farm through the Squaw sand. It was a duster in the lower sand and the well was turned over to the United Fuel Gas Co., which gave it a shot in the Big Lime formation and it produced 25 bbls. the first 12 hours. In Troy district, Gilmer County, the Gilco Oil & Gas Co. has rig completed on the J. W. Stanley farm, on Little Cove Creek. In Henry district, Clay County, the South Penn Oil Co. has rig up on the H. P. Barker farm. On Rush Run, Smithfield district, Roane County, Fred Kopp and others have rig completed for a second test on the A. T. Ferrell farm.

On Wildcat Run, Murphy district, Ritchie County, the Hope Construction & Refining Co. completed in the Maxon sand No. 6 on the Neil Bradley farm, a 15-bbl. pumper. In Meade district, Tyler County, C. Calloway and others completed a duster in the Big Injun sand on the C. F. Flesher farm.

In Reedy district, Roane County, the Heck Oil Co. completed in the Berea grit No. 4 on the A. D. Tallman farm. It is a 50-bbl. producer. In Lee district, Calhoun County, the United Fuel Gas Co.'s 4,091 on the Carr Schafer farm is a gasser in the Big Injun sand. In the same district, F. F. McIntosh has a gasser in the same formation on the John I. McCoy farm.

Wood County

In Williams district, Wood County, three-fourths of a mile above the mouth of Big Run on the bank of the Ohio River, Athey & Beason have drilled their test on the B. J. Henserdon farm through the Big Injun sand. It is a duster in all sands.

On Reedy Creek, Reedy district, Roane County, the Heck Oil Co. has rig completed on the J. E. Watkins farm. On Crooked Run, Freemans Creek district, Lewis County, Krause Brothers have started to drill on the Krause heirs' farm.

In West Union district, Doddridge County, the Columbian Carbon Co. has a gasser in the Gordon sand at No. 56 on the Lewis Maxwell farm. In Central district, the Hope Construction & Refining Co.'s No. 4, on the G. W. and Zilla Pigott farm, is showing for a 10-bbl. pumper. In Murphy district, Ritche County, the South Penn Oil Co.'s No. 10, on the E. Bickerstaff farm, is a gasser. In the same district, the Hope Natural Gas Co. is drilling a second test on the L. A. Cain farm.

In Henry district, Clay County, the South Penn Oil Co. completed in the Big Injun sand No. 8 on the A. B. Hicks farm. It is a 12-bbl. pumper. In the same district, the Virginian Gasoline & Oil Co. has a 15-bbl. pumper at its No. 8 on the James Reed & Co.'s farm.

In Henry district, Clay County, the Virginian Gasoline & Oil Co. has completed a duster on the Mary D. Hanshaw farm in the Squaw sand. The

(Continued on Page 156)

MAY EXTEND KENTUCKY SHUTDOWN; NIAGARA FIELD TO GET NEW PLAY

By Whit
Staff Correspondent, Kentucky-Tennessee

OWENSBORO, Ky., Mar. 17.—The continued shutdown of development work in the Owensboro - Hartford - Pellville Field of Ohio, Daviess and Hancock Counties has come to a point where but few wells are reported, and it has been going on for a period from December 15 to March 15, and may be further continued when the third month expires on March 15, although the operators to some extent are anxious to get out and get busy. Outside of the three counties mentioned very little is being done, although the showings being found of recent date in Henderson and McLean Counties may bring about greater activity for those two points.

The Niagara Field in Henderson County is looking up, and with an outlet for its crude by the completion of a pipe line by the Illinois Pipe Line Co. to the field, connected through its main line running to the storage station just east of Owensboro to the main line running from the Kentucky-Tennessee line to Lawrenceville, Ill., will increase development work in the field as well as to the south across the Henderson County line into the Sebree area of Webster County where prospects for oil have been good for a number of years.

The Niagara Oil & Gas Co. drilled in No. 3 on the J. E. Knight property, in the Niagara Field, close to the High School land, and it is estimated around 30 bbls., with 37 feet of sand. Turner & Lewis, heretofore reported as the Southern Oil Producing Co., have No. 3 in on the Edward Farley property showing for around 30 bbls. About the only outlet for oil from the Niagara Field for a long time was a line put in by the Imperial Oil & Gas Co. from the field to the Green River at Riverside, where the oil was shipped on barges to refineries. This line is now connected to the Illinois Pipe Line Co.'s new line and the oil is being purchased by the Ohio Oil Co. This will bring about a renewal of activity in the Niagara Field. The wells are not large, but they are about as prolific as most of the wells being found in western Kentucky at this time. It was the No. 1 on the J. E. Knight farm that came in a couple of years ago that attracted widespread attention to Niagara and much leasing was done and now the landowners and operators can dispose of their crude product and things will go along with a hum when the weather improves so material can be handled over the field. The Wittmer Oil & Gas Co. has secured quite an acreage in the field and is getting busy. C. E. Daugherty, one of the well-known Owensboro operators, is also getting active in the Niagara Field.

McLean County

McLean County has made its best oil showings recently by the completion of two wells, one by Cameron & Thompson on the G. B. McManama farm, on the Owensboro-Calhoun State Pike, which found a stray sand at 1,123 feet that shows for 50 bbls. On another of the George B. McManama farms, about 6 miles from Calhoun, the Ohio Oil Co.'s No. 3 well is also estimated at 50 bbls.

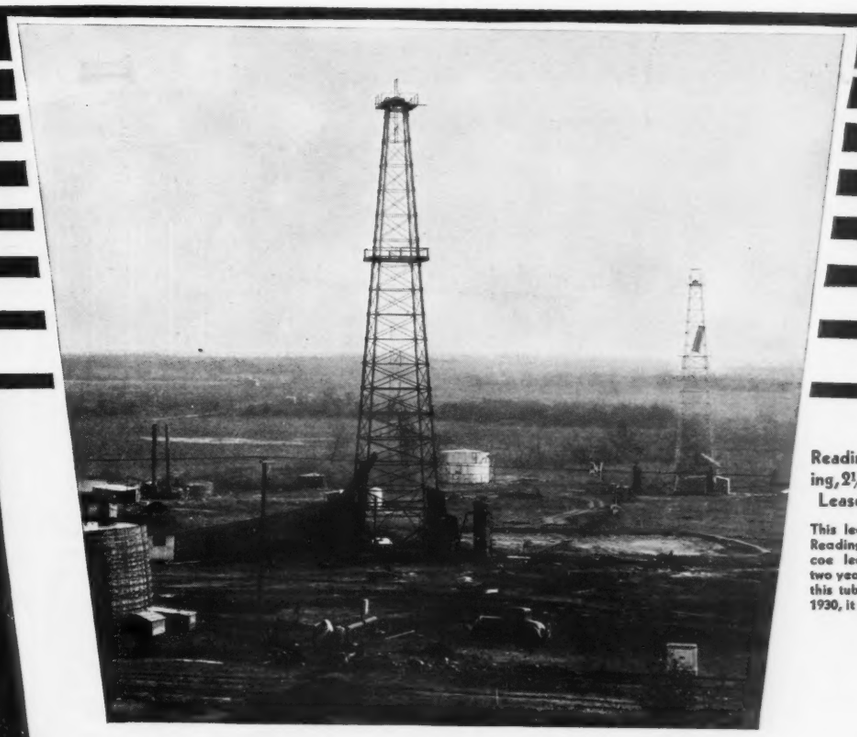
Daviess County

Only one completion is reported from the Daviess County part of the Owensboro Field, the Creek Drilling Co.'s No. 3 on the J. W. Howard 25 acres, which shows for 25 bbls. at a depth of 1,453 feet. In the same county, the same company is drilling No. 1 Parrish Wheeler farm, also No. 1 on the Louisville Land Co. farm. James C. Ellis and others are drilling No. 1 Drake farm. Oliver Jenkins is drilling No. 1 Riley farm. Ohio Oil Co. is drilling No. 1 P. C. Brown farm. Cumberland Petroleum Co. is drilling No. 2 J. B. Baird farm in the Utica Pool, and Evans & Garrison are drilling No. 2 J. M. Clark. Smith, Randolph and others are drilling No. 1 Edward Bennett. E. E. Thomas and others are drilling No. 3 E. C. Ward, in the Jones Pool, southwest of Whitesville.

Ohio County

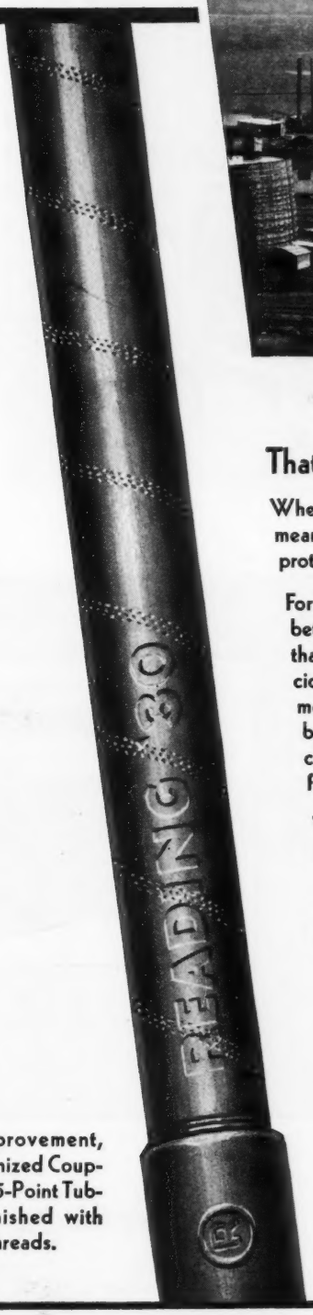
The best of the late completions in Ohio County is Hupp, Duff and others' No. 5 on the J. A. Stewart farm in the Buford Pool, with an initial production of 200 bbls. In this hole a string of 560 feet of casing was set and the heavy pay tapped in the Stray sand at 599 feet. Kemrow-Cumberland company's No. 3 W. Hamilton farm is reported dry, as is H. C. Smith and others' No. 2 Clay Edwards farm in the Buford Pool area. D. J. White and others' No. 6 well, 1,000 feet from the north line and 400 from the west line of the Ernest Bickett 90 acres, pumped 15 bbls. initial. The Ohio Oil Co.'s No. 6 W. B. Kelley farm in the

(Continued on Page 119)



Reading Iron Company tubing, 2½" upset, Frank Noe Lease, Earlsboro, Okla.

This lease has two wells with Reading tubing moved from Roscoe lease, having been used two years on that lease. When this tubing was run January 1, 1930, it was in perfect shape.



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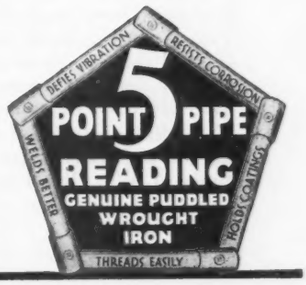

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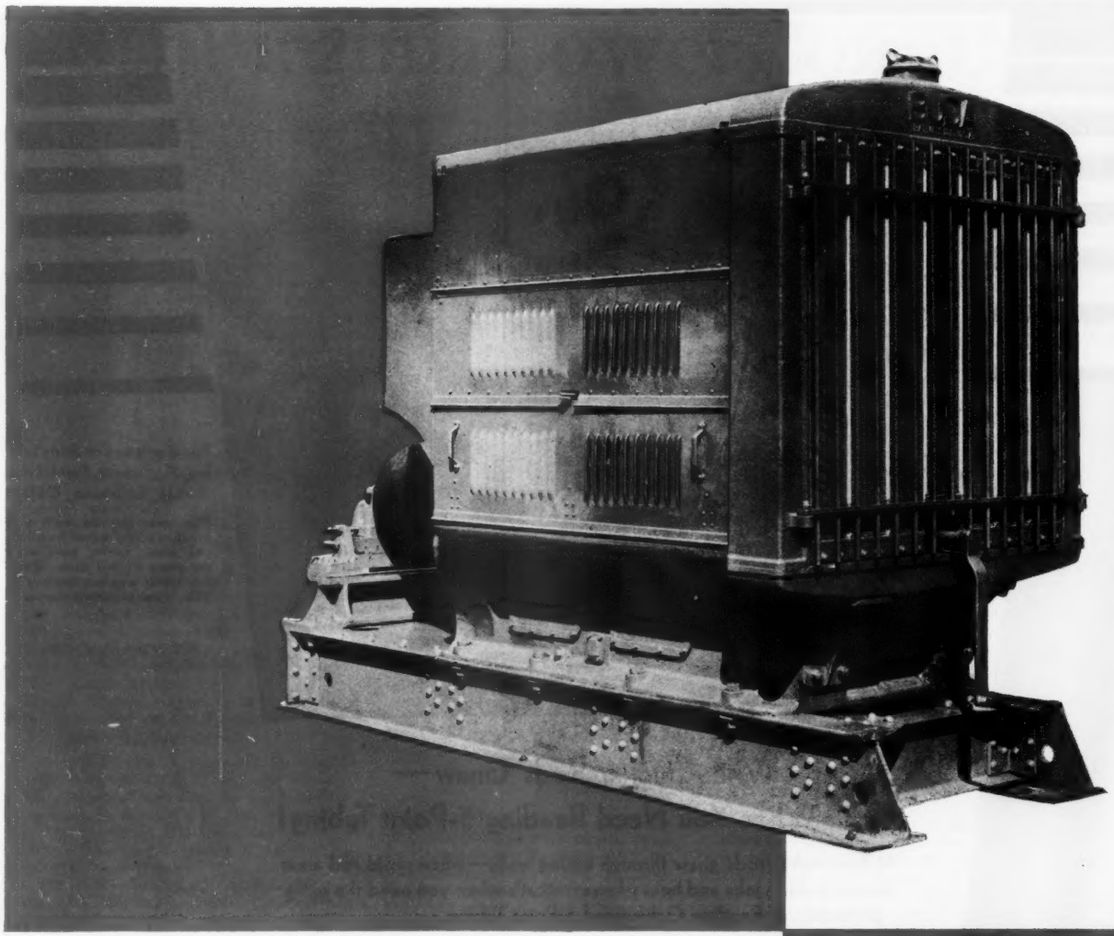

Buda-M.A.N. Diesels are full Diesel, airless injection, 4-cycle and require no hot spots or auxiliaries for starting. They are light-weight, compact and can be easily moved. Made in 92, 120 and 180 H.P. sizes.

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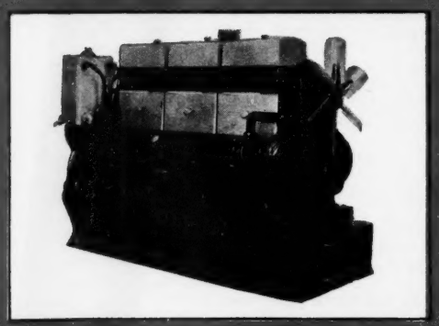
The Buda-M.A.N. Diesel is the result of thirty years' experience in Diesel engine manufacture—for this engine is built under license from the M.A.N. Company of Germany in whose shop Dr. Rudolph Diesel made his first engine over thirty years ago.

This engine operates on the four-stroke cycle principle with no starting accessories or auxiliaries. It requires no more space than a heavy duty gas engine of equal horsepower and is less than half the weight per horsepower of ordinary Diesel engines.

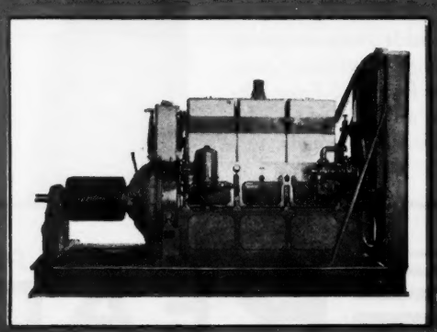
You will be interested in the 61 days' record on a pipe line pumping job in Texas which proves conclusively the efficiency of the Buda-M.A.N. Diesel engine for this work.

Total bbls. pumped	151,610.60	Total hours run	902.92	Average bbls. pumped per hr.	167.9
Total bbls. pipe line oil used as fuel oil—41 gty.	66.33	Average pressure	415 lbs.		
		Maximum pressure	550 lbs.	Average hrs. run per day	14.8
		Minimum pressure	300 lbs.		



Six-cylinder, 180 H.P. Buda-M.A.N. Diesel mounted on cast iron base which serves as oil pan.

Six-cylinder, 180 H.P. Buda-M.A.N. Diesel mounted on structural steel base with pulley and outboard bearing.



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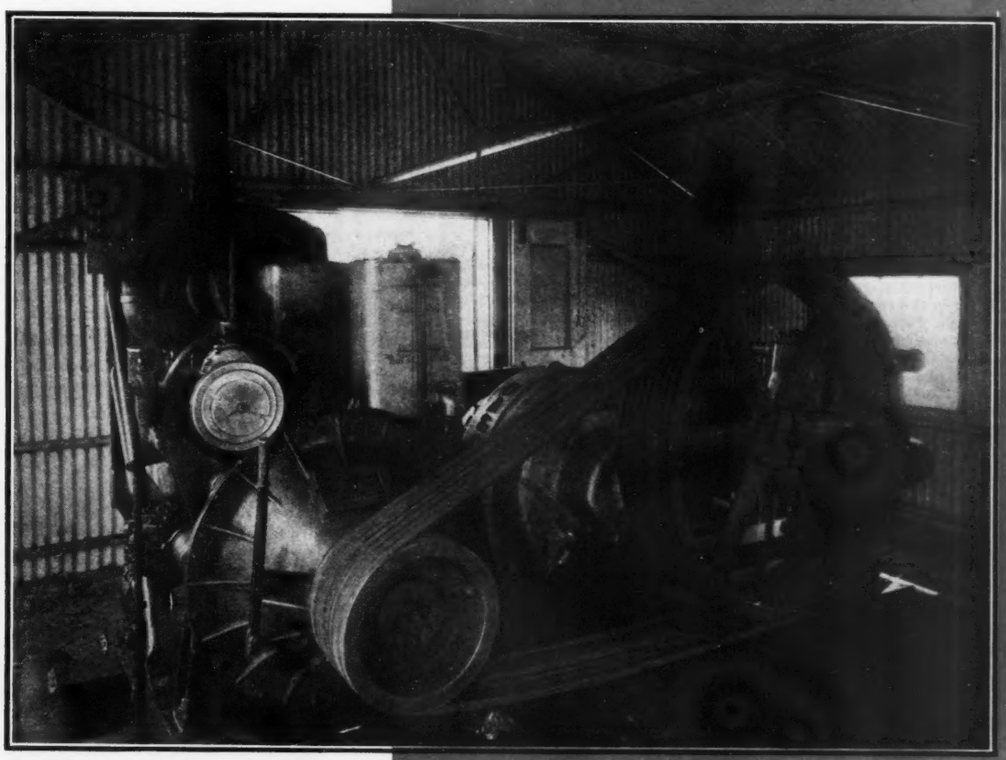

Gaso Duplex Piston Enclosed Type Power Pump Fig. 710, with V-rope drive from Buda-M.A.N. Diesel Engine—in service in a pipe line station in Texas.

A GASO PORTABLE DIESEL PUMPING UNIT

This unit, consisting of Gaso Pump Fig. 710, compactly mounted on steel H-beam skids with V-rope drive from a Buda-M.A.N. Diesel Engine, is suited to pumping large capacities at high pressures, and with a minimum cost for fuel.

Interchangeable liner fluid ends give capacities ranging from 54 bbls. per hour at 1400 lbs. pressure, to 502 bbls. per hour at 300 lbs. pressure.

Notable efficiency and durability is achieved in the Fig. 710 Power Pump through the incorporation of such features as—an enclosed crank case, with all working parts running in an oil bath—Timken Tapered Roller pinion bearing—solid Herringbone gear, mounted in center on steel crank shaft—and genuine babbitt main bearings.

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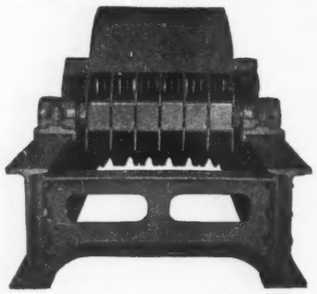
for every oil industry need

EQUIPMENT AND SUPPLIES

IDECO CROWN-BLOCK IS MADE FOR SEVERE DUTY

The new Ideco straight-line, heavy-duty crown block and the Ideco 72-inch stream-line traveling block are a combination designed for speed, power and economical operation. This crown block has six 36-inch sheaves made of Idecalloy or manganese steel mounted in a line on a single 6-inch alloy steel, heat-treated center pin. This provides vertical alignment of the wire lines between the crown block and the traveling block. Side drag and friction of the lines are eliminated. The sheave assembly is adjustable lengthwise on the beams, permitting perfect alignment of the traveling block, swivel and drill stem with the center of the well. Patented bearing cleats clamp the boxes tightly to the beams.

The sheaves on this Ideco crown block and their bearings are interchange-



able with those on the Ideco 72-inch heavy-duty traveling block. The grooves are ground smooth and takes a high polish, the contour conforms to A.P.I. specifications for 1 or 1⅛-inch wire line.

American heavy-duty roller bearings, having 1-inch diameter rollers and hardened inner and outer races are used. The inner race is pinned to the center pin to prevent revolving and it takes the wear off the rollers instead of their bearing directly against the surface of the center pin. These bearings and races are interchangeable with those on the heavy-duty traveling block.

The center pin is made of 6-inch alloy steel, heat-treated and drilled for individual lubrication to each sheave. It is held rigidly in place by the center-pin bearings. Additional support is given by the spacer plates which fit snugly around the pin and transfer part of the load to the end pins.

Spacer plates made of one-half-inch steel plates separate the various sheaves. Square end pins engage slots in the ends of the side and spacer plates. By loosening the bearing cleats of the end-pin bearings, the pins slide clear of the plates, making the shifting of the lines from one sheave to another an easy operation. The frame of the block is made up of two 18-inch 55-pound structural I beams, 7 feet 6 inches long separated by cast-steel spacers.

The sheave guard, made of steel plate can be detached quickly by removing two bolts. Lock nuts are provided throughout. The Alemite pressure lubrication system is used. The overall length of this Ideco crown block is 7 feet 6 inches, overall width 3 feet 10 inches, weight 5,400 pounds. An 11-foot 1.4-inch cat line sheave is furnished if specified, made of cast steel and grooved for 1½-inch rope.

The Globe Oil Tools Co., Los Nietos, Calif., announces that Catalog No. 31, containing complete information about H. C. Smith Type "G" demountable drilling bits is ready for distribution. The catalog also contains performance records and information about rebuilding and hardsetting bits.

OXWELD NOW MARKETING NEW STEEL WELDING ROD

The Oxweld Acetylene Co., New York, has placed on the market a welding rod for making extremely strong welds in steel, designated as Oxweld No. 22 S.D. (strength and ductility) steel welding rod. This welding rod has been developed especially to meet the demand for 100 per cent joints in steel pipe having a carbon content of 0.30 to 0.40 per cent, which recently has come into use. In general appearance, weldability, chemical and physical properties No. 22 S.D. rod is similar to the Oxweld No. 1 high test rod, but it will produce welds of even higher tensile strength.

Oxweld No. 1 high test rod produces welds having the full strength of the base metal in regular low-carbon steel and steel containing less than 0.30 per cent carbon. For full-strength welds in 0.30 to 0.40 carbon steel, Oxweld No. 22 S.D. rod is recommended. Several coupons cut from special analysis, high-strength plate that had been welded with a single-vee weld using No. 22 S.D. rod are reported to have shown tensile strengths of 100,000 pounds per square inch.

The action of No. 22 S.D. rod under the welding flame is similar to that of the No. 1 high test rod. No. 22 S.D. is a self-fluxing and deoxidizing rod which sparks very little. It forms a fusible slag that rises to the surface where it serves as a protective coating which, although extremely thin, protects the surface of the molten bath from the oxygen of the air and thus prevents oxidation. The composition of this rod also prevents the strengthening element, carbon, from burning out during the welding operation. It has the ability to fuse easily into the base metal at both the sides and the bottom of the vee, which is another reason for the strength of the weld produced.

REMOTE-TYPE DEVICES HAVE IMPORTANT USES

Brown remote-type instruments manufactured by the Brown Instrument Co., Philadelphia, Pa., are provided in models designed to control, record and indicate flows, pressures, liquid levels and positions. They also can be supplied in indicating or recording models equipped to operate light signals or sound an alarm when predetermined limits of the governing factor are reached. Either circular chart or strip chart recorders are available.

Instrument readings from remote points are valuable in many applications. In oil refineries they show distant pressures; oil, water, gas, air and steam flows; liquid levels and valve settings. They show gas pressures and flows at high-pressure pumping stations and distribution points. They show pressures and flows at wells and distribution points in natural gas systems. They show settings of important distant valves.

A new catalog on remote-type instruments has been issued by the company.

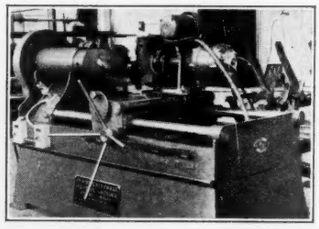
SPECIAL "SIVYER REPORTS"

Consolidation of the Sivyer Steel Casting Co. and the Nugent Steel Castings Co. was made the occasion for a special edition in colors of "Sivyer Reports," published monthly in the past by the Sivyer company. Combination of the two organizations is symbolized throughout the pages of the book by placing the Sivyer diamond and the Nugent square in juxtaposition, each containing a group picture of employes. Sivyer Steel Casting Co. is the name of the combined organizations, with offices in Chicago and Milwaukee.

STOODY CO. DEVELOPS A UNIVERSAL BIT GRINDER

As a solution to oil well drilling problems resulting from undersized and improperly shaped drilling tools, the Stoody Co., Whittier, Calif., has perfected the Stoody Universal oil tool grinder. Undersize or off-center bits are eliminated, according to the manufacturers.

This bit grinder occupies a floor space of 3½ by 8 feet. On a sturdy base are mounted the necessary machinery and equipment for internal and external grinding as well as for rotating the bit as it is ground and for furnishing water for the grinding operation. The entire assembly weighs approximately 2,500 pounds, fully equipped, and it has a capacity for bits up to 12½ inches in diameter and with a direct reading gauge for both external and internal diameters.



Bits may be ground as they rotate or the bit may be ground when not in rotation. A specially designed guide directs the path of the external grinding wheel so that it will follow spirals as well as straight cutting edges and any desired clearance from the cutting edge may be ground easily and accurately. At all times the bit will be ground concentric with the axis of rotation when in service.

Provided with a thread to take an A.P.I. or standard 6-inch drilling bit pin, the spindle, by the use of suitable subs, may be adapted to fit any size or type of bit. By using a face plate on the spindle, the machine will fill many needs.

As marketed, the spindle revolves at a speed of 50 r.p.m., but the driving arrangement is equipped for a change of gears and may be slowed up or speeded up to meet individual requirements.

The machine has a hand-operated longitudinal feed and a hand-operated cross feed which operate on rigid ground ways that insure accuracy as well as ease of travel.

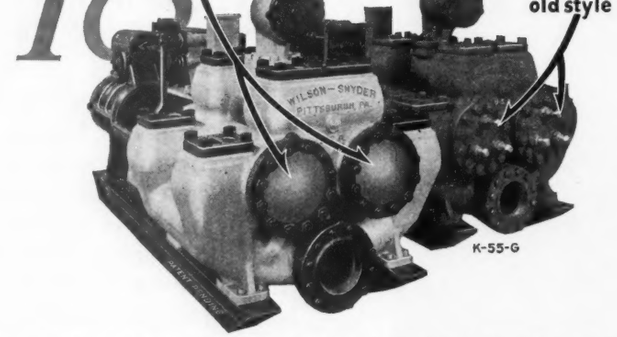
To meet all local conditions, this grinder is equipped to be used with either 50 or 60 cycle A. C. electric current of 220 or 440 volts, and also with D. C. electric current, and is either fully equipped with both external and internal grinders or less the external grinder wherever it is desirable to utilize the Stoody combination grinder already on hand.

PARKERSBURG R. & R. CHANGES

The Parkersburg Rig & Reel Co., Parkersburg, W. Va., has discontinued its offices in Casper, Wyo., and Denver, Colo., and placed this territory under the supervision of its northwest Texas district, with headquarters in Fort Worth, Tex. The branch recently established in Refugio Tex., has been transferred to Woodsboro, Refugio County, Tex. A new branch has been opened in Beeville, Bee County, Texas. Branches also have been established in Zwolle, La., and in Grand Saline, Van Zandt County, Texas.

Among articles in the current issue of the Fusion News, published by the Fusion Welding Corp., Chicago, is one on "Repairing the Rotary Rock Bit" by O. S. Walters.

WILSON-SNYDER SLUSH PUMP HAS NEW LINER SPACER



The new liner spacer with internal set-screws is the latest improvement embodied by the Wilson-Snyder Manufacturing Corp., Pittsburgh, Pa., in its long-stroke high-pressure slush pump to save expense and annoyance. The armored reversible fluid valves, locking device on piston-rod nuts, fluid ends individually shop tested to 2,500 pounds per square inch and extra heavy steam cylinders have been perfected during the last year also.

The new liner spacer gives drillers a means of locking the liners before the fluid heads are in place. Once the liners are locked in place, there is no need of touching the set-screws as the liner spacer is so designed that the piston can be removed without interference. Strain in the pump chamber and fluid heads caused by uneven adjustment of the old outside screw arrangement is eliminated.

Owing to the operators' ability to see that the liners are positively locked, he virtually eliminates the possibility of the liners working loose, and the consequent damaging effect of mud cutting between the liner and the chamber. The elimination of set-screws in the fluid cylinder heads does away with packing.

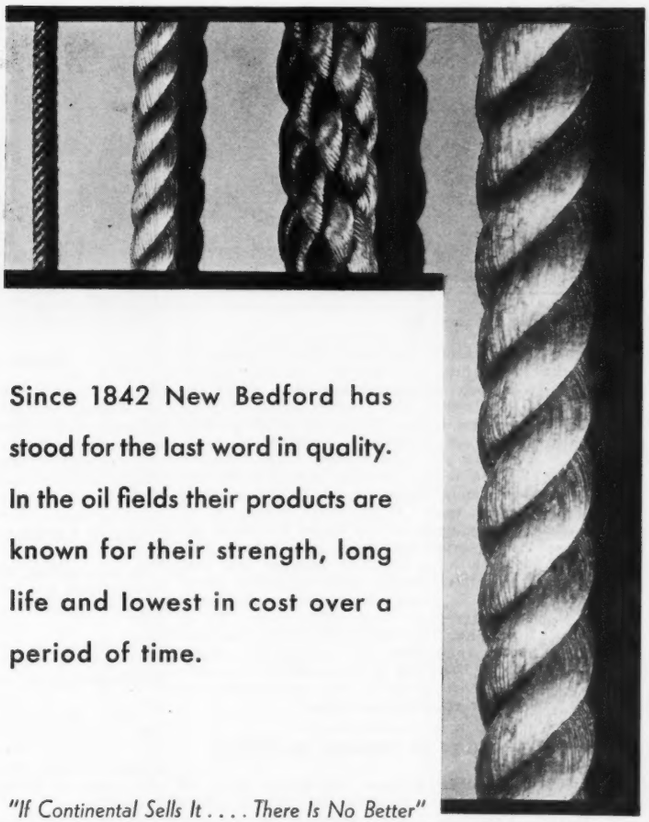
In the new assembly there is less interference in the flow of mud to and from the piston. This new internal adjustment liner spacer can be applied to all Wilson-Snyder No. 18 slush pumps.

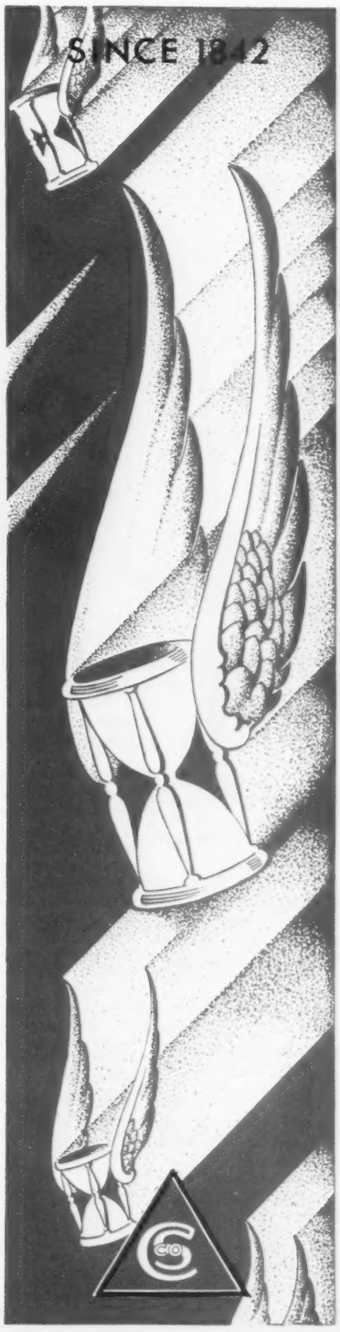
COMPANY AND PRODUCTS STAND

THE TEST OF TIME

NEW BEDFORD CORDAGE

DRILLING CABLE—BULL ROPES—TORPEDO LINES





Since 1842 New Bedford has stood for the last word in quality. In the oil fields their products are known for their strength, long life and lowest in cost over a period of time.

"If Continental Sells It . . . . There Is No Better"

THE CONTINENTAL SUPPLY COMPANY
General Offices: ST. LOUIS

THE CONTINENTAL SUPPLY CO., LTD.
224 Traders Building, Calgary, Alberta, Canada

Export Offices: CONTINENTAL EMSCO COMPANY, INC. 74 Trinity Pl. New York—
London Offices: 316-17 Dashwood House, Old Broad St., E. C. 2

J450

CONTINENTAL

EQUIPMENT AND SUPPLIES

DESIGN OF NEW SWIVEL ASSURES LONG SERVICE

The National Tool & Metals, Inc., of Torrance, Calif., has developed, perfected and tested a new type of swivel, which has won recognition as embodying valuable improvements in engineering de-

sign. The new National swivel, owing to its new bearing construction, is said to have long life, and ability to perform heavy, continuous duty over a long period of time.

BUSINESS NOTES

The Sabine Supply Co., manufacturer of oil well and refinery supplies, with headquarters in Orange, Tex., will open a branch store in Houston, Tex.

The Alsop Engineering Co., New York, will occupy its new quarters at 39 West Sixtieth Street, just west of Broadway, New York, on April 1.

The Wagner Electric Corp. of St. Louis, Mo., has transferred P. Loyd Lewis from the managership of the Kansas City branch office to the home sales office, where he has been placed in charge of the merchandising division.

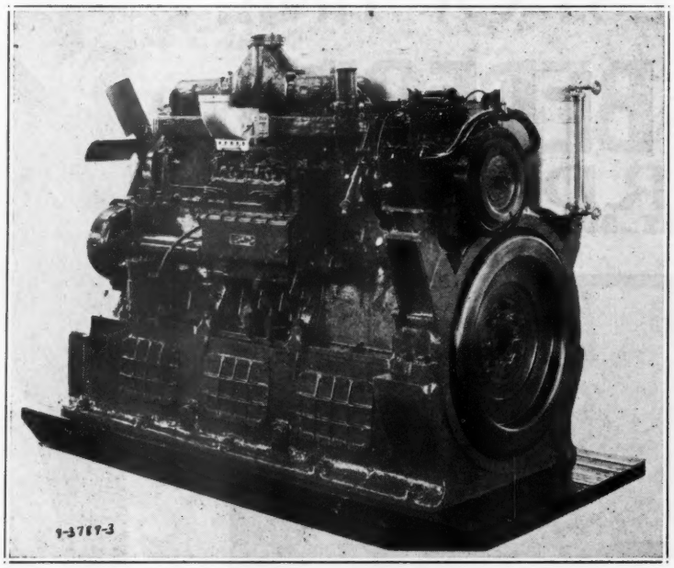
The Peabody Engineering Corp., New York, manufacturer of fuel burning equipment, will move to new quarters about April 15, occupying the entire thirty-ninth floor of the Lefcourt Colonial Building, Forty-first Street and Madison Avenue.

H. N. Royster has been appointed Mid-Continent representative for the Titusville Iron Works of Titusville, Pa. Mr. Royster has had considerable experience with cable and rotary equipment in the South American and Mexican fields as well as fields in the United States. For the past few years he was with the Carter Oil Co. in the Dutch East Indies.

"PIPER" MAKES APPEARANCE

Joseph Greenspon's Sons Iron & Steel Co., St. Louis, Mo., makers of pipe, has issued the first numbers of "The Piper," which is to be published monthly, "to provide a list of our available stocks, a bit of humor and real help in solving pipe problems."

BUDA-M.A.N. DIESEL MUCH LIKE GASOLINE ENGINE



Buda-M. A. N. Diesel (fuel pump side)

The Buda-M.A.N. Diesel engine represents a late development in lightweight high-speed Diesel engines and is manufactured by the Buda Co., Harvey, Ill., under license from the Maschinenfabrik Augsburg-Nurnberg A. G. of Germany, commonly known as the M.A.N. Co.

The Buda-M.A.N. full Diesel compressorless solid injection engine is in many respects more like the present day gasoline engine than it is like the heavy slow-speed Diesel. The Buda-M.A.N. Diesel injects a solid spray of fuel directly into the combustion chamber through a small opening in the nozzle, without the aid of compressed air to atomize it. The amount of fuel and the time of injection are taken care of by the fuel pump, itself a compact piece of apparatus, so that complicated automatic fuel valves on the cylinder head are eliminated.

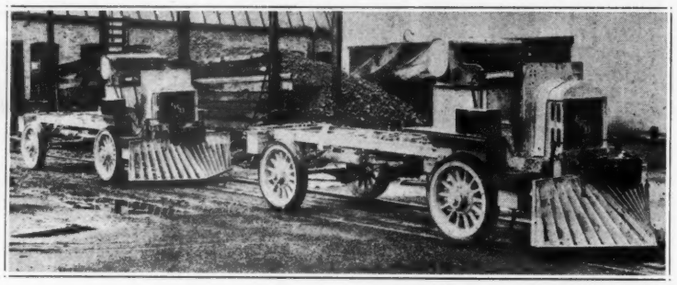
In the four-stroke cycle Diesel engine, there is the same series of events as in any four-stroke cycle internal combustion engine, namely, inlet stroke, compression stroke, expansion or power stroke and exhaust stroke.

The standard equipment for starting consists of a small two-cylinder opposed type air-cooled gasoline engine mounted directly on the flywheel housing. The starting engine is controlled by the choke and throttle controls. The magneto is built into the flywheel. A short piece of rope is wrapped around a groove in the flywheel and a quick pull starts the gasoline engine. Drive to the Diesel flywheel is through a conventional type Bendix gear and a roller chain. Application of the starting engine power to the main engine is controlled by the clutch lever. Compression is relieved in the cylinders of the Diesel by means of the compression relief lever. After the clutch lever has been engaged and the Diesel is rotating, the compression relief lever is moved to "starting position" which restores compression in the No. 3 cylinder. This will start to fire immediately and then the compression relief lever is moved to running position and the starting clutch lever disengaged and the starting engine stopped.

N.G.E. IN LARGER QUARTERS

Additional space and better facilities have been acquired by Natural Gas Equipment, Inc., through moving its Tulsa branch to new quarters at 311 East Second Street. The company handles Wilgus pressure regulators, N.G.E. gas burners and Anubis differential pressure recorders. A catalog describing N.G.E. burners has been issued recently.

FWD RAILROAD CHASSES USED IN SWITCHING CARS



FWD railroad chasses used by a large oil company at its refinery near Vera Cruz, Mexico, for switching freight cars and hauling a 25-ton gondola car over its road, a distance of 30 miles. The chasses were made by the Four Wheel Drive Auto Co., Clintonville, Wis.

WALTER A. DRAKE WITH LUCEY PRODUCTS CORP.

Walter A. Drake, 22 years with the Oil Well Supply Co., has resigned his position as district manager of the Okla-

Walter A. Drake

homa City and Seminole district to join the Lucey Products Corp. In his past connection, Mr. Drake has been located in practically every oil field of Kansas and Oklahoma. His present home is in Oklahoma City, where he will continue to live.

TRADE LITERATURE RECEIVED

A new edition of the bulletin on CP sinker drills has been issued by the Chicago Pneumatic Tool Co.

"Cracking" is the name of a publication issued periodically by the Petroleum Conversion Corp., New York.

"With Moonlight on the Job" is the title of a folder being mailed by the Moon Manufacturing Co., Chicago, and designed to show the value of Moon lighting outfits in drilling and other oil-field operations.

"Stopping Evaporation with the Wiggins Breather Roof" is a new bulletin issued by the Chicago Bridge & Iron Works, Chicago. It gives detailed information on an oil storage tank roof which prevents evaporation by flexing up and down. Where corrosive oils have been encountered, tanks with these roofs have been filled so that the oil is in contact with the under side of the roof. This prevents corrosive action of the steel plates.

The Chicago Pneumatic Tool Co., New York, has prepared an attractive 32-page catalog in colors, descriptive of the new "Tucone" rock bit.

RUSCO TO OPEN NEW BRANCH

The Russell Manufacturing Co., Middletown, Conn., maker of Rusco brake lining and other products, announces a new branch and warehouse will be opened at 411-414 Interim Warehouse Building, Detroit, Mich., on April 1. Ohio, West Virginia, Kentucky, southern Illinois, Indiana, Michigan and part of Pennsylvania will be served from this branch. F. Fuhrman will be manager and P. H. Burns assistant with a sales force of 33 men.

Moore PITMAN...

AS GOOD AS THE CHAMPION DERRICK

Here is a strong pitman—of structural steel, reinforced, electrically welded. The continuously lubricated bearing is self-aligning and easily operated. It has a quick opening and closing mechanism and convenient adjustment for bearing wear. Moore pitmans are punched for A. P. I. stirrups unless otherwise specified. Standard lengths, from eleven to fourteen feet. The longer sizes may be shortened in the field quite readily, as punching for all lengths is provided at the factory. . . . The walking beam shown is the Moore D. W. Series, with removable babbitted bearing.

Moore

ALL STEEL RIG EQUIPMENT

LEE C. MOORE AND COMPANY, INC

PITTSBURGH Established 1907 TULSA

New York Offices, Oilfield Equipment Company, 30 Church Street, New York, N. Y.

DALLAS, TEXAS WICHITA, KANSAS CASPER, WYO.

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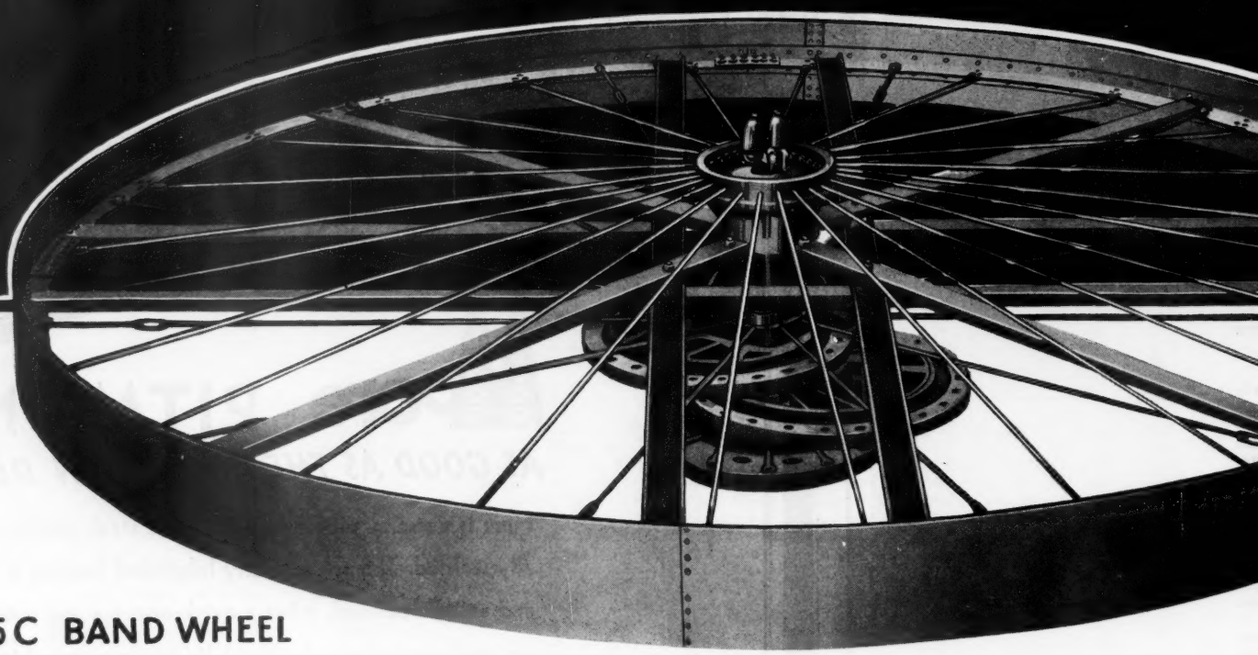
Stocks in All Principal Fields

NATIONAL



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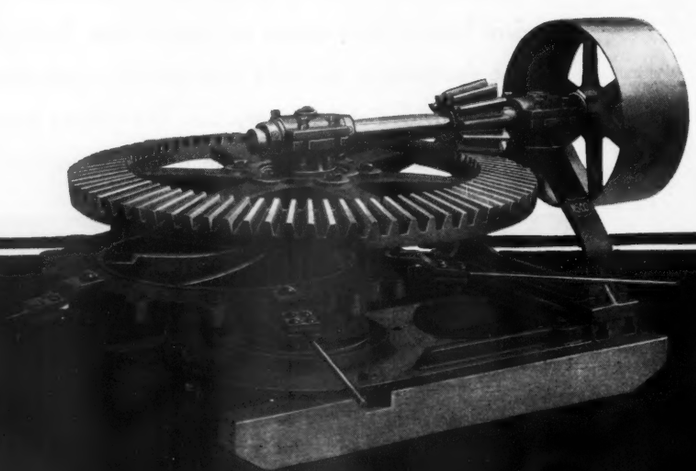

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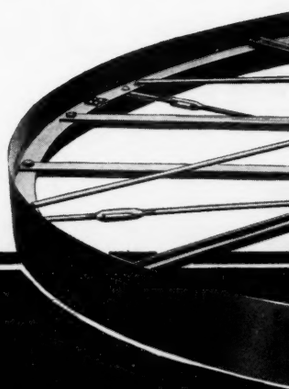

THE
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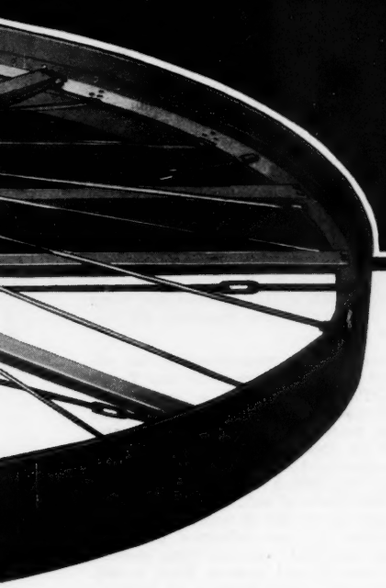

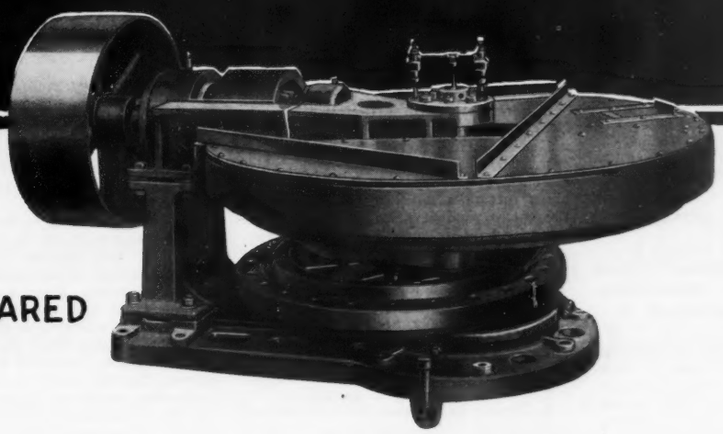

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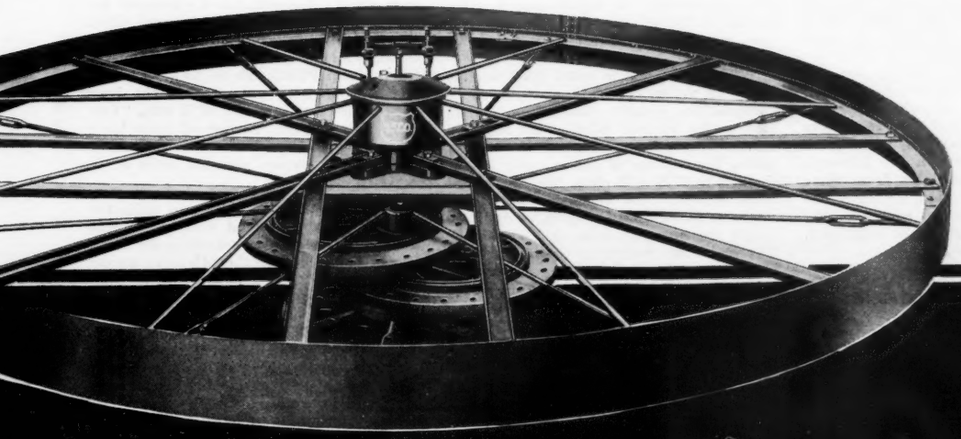


No. 12 C BAND WHEEL

THE
AL SUPPLY
PANIES

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

SOURCE OF LUBRICATING OIL

How can one show whether a given lubricating oil is from a Pennsylvania source or from other sources?—L. S.

The subject identification of lubricating oils as to the kind of crude oil from which it may have been manufactured, has been discussed on this page several times. See issues of January 1, 1928; April 18, 1929; July 11, 1929.

Paraffin base origin—Usually are of low gravity compared with other lubricating oils of the same viscosity. They have high pourpoints and contain only traces of asphalt with very little sulphur. Usually show hard carbon deposits in the internal combustion engine. The color of the high viscosity oils may be considered to be medium with a clear greenish cast. However, pourpoint and color are properties that may be controlled by the process of manufacture.

Asphalt base origin—The lubricating oils from asphalt base oils may be distinguished by the relatively high gravity and low pour temperature. While many of these oils are treated to a low sulphur content some are liable to contain a comparatively high percentage of total sulphur because the asphalt crudes frequently contain complicated sulphur compounds that are difficult to remove by the ordinary refining methods. The carbon residues in internal combustion engines are often soft and fluffy as compared by a similar deposit from oils of paraffin base origin. They have a high gravity.

Naphthene base origin—The naphthenic oils contain little or no wax and consequently the lubricating oils from this source have extremely low pourpoints and are easy to refine to light colors. They usually deposit a soft carbon. Chemical tests show large percentage of naphthenes and frequently traces of organic acids.

The flashpoints and firepoints may help to identify an oil when considered with other properties. These points are usually lower than the oil made from a paraffin base crude because the lubricating distillate is separated at a lower temperature and some of the lighter, lower flashpoint, hydrocarbons are retained.

It is almost impossible to be certain of the source of a lubricating oil that has been made from a mixed base crude. Since these oils contain both paraffin and asphalt hydrocarbons the process of refining may be modified with the object of producing almost any desired quality.

QUALITY OF FURNACE FUEL OILS

Lately I have noticed that Fuel Oils of Nos. 1, 2, 3, A.O.B.A. Specifications are throwing down sludges and sediments which form resinous gums. I understand that this comes from the crudes but more often from the treatment in cracking stills. What conditions of straight-running or cracking increases this tendency? Doesn't blending increase it? Will chemical treatment reduce this objectionable feature?—J. H.

The specifications for these oils are:

Grade of oil—	Flash closed	Max. pour F°	Maximum sediment and water	Distillation— Min. %	Distillation— Over at F°
No. 1 Light furnace	110/165	0	trace	10	420 Max. E.P. 600
No. 2 Medium furnace	125/190	0	trace	10	440
				90	620
No. 3 Heavy furnace	150/200	0	0.1%	10	460
				90	675

Max. viscosity 55 at 100° F. Saybolt Universal.

The refiners manufacturing these oils have endeavored to make a product that will give satisfaction with certain types of burners and have arranged their sales efforts accordingly. It is the practice in many instances for the jobber to handle the entire product of a refinery, or the oils may be distributed by a small group, selling to selected and regular customers who have found the fuel satisfactory. The most satisfactory arrangement appears to be that where burner sales, service, and oil supply are all centered in one agency. Under these conditions the refiner is always in touch with consuming conditions and is prepared to supply a product of the desired quality.

It should be appreciated that burner fuel oils are unfinished distillates which are sold for a relatively low price, consequently they cannot be expected to approach that degree of refining represented by the better grades of gasoline, and, in fact, it does not appear that such high purity is necessary to meet the conditions of consumption.

The tendency to form gummy deposits is related to certain types of crude oil and also to methods of refining. There are a few crudes that are naturally sticky and gummy but in most cases gums are first noticed in the kerosene fractions and the distillates from some form of cracking operation. Blending has no influence except as to source of the blending fractions. As above suggested, treatment will reduce gum.

AVOGADRO'S HYPOTHESIS

I do not understand Avogadro's law of gases and its application to natural gas and would like to have you explain it—S. E.

Avogadro was the first to distinguish between atoms and molecules, which at the time, 1811, he announced the now commonly recognized theory, were words that were used synonymously. He suggested that equal volumes of all gases, when under the same conditions of temperature and pressure, contained the same number of molecules.

I once heard a well-known professor from a leading university say that he had taught the hypothesis of Avogadro to his students for many years without himself understanding it. While he probably knew a lot more about the subject than this modest statement would indicate, it is of some comfort to us ordinary mortals who have found it so difficult to grasp the full significance of what Avogadro had proposed.

If we are to be technical, it is not proper to call the theory a law, because it is not possible to count the molecules of all gases under all conditions of temperature and pressure. So hypothesis or theory may be better words; however, the fact that a liter of methane and a corresponding volume of carbon dioxide always contain an equal number of molecules has been proven many times in different ways.

It should be understood that there are very large to very small, and quite heavy to exceedingly light molecules but always the same number in a give space if there is no change in temperature and the pressure is the same. It is plain that a pint of water and a pint of mercury do not weigh the same; also, a pint of hydrogen and a pint of methane would have different weights under normal conditions.

The metric system is the standard for weights and volumes in scientific work but cubic feet, pounds and Fahrenheit degrees are the units commonly used in the gas industry. Many authorities have demonstrated that the molecular weight of any gas when expressed in grams, will measure 22.4 liters at 0° C. and 760 m.m. pressure. Converted to our ordinary system the statement is that when the molecular weight of a gas is stated in pounds the volume will be 359 cubic feet at 32° F., under a pressure of 1 atmosphere. This volume is called a mol for convenience and is another way of stating Avogadro's hypothesis. As 60° F. is the temperature at which gas is commonly measured the mol is frequently used at this temperature, or 379 cubic feet.

With these facts in mind it is possible to make many applications, both as to composition, weight, and volume, when making the various calculations required in the study of natural gas and all other gases. The volume of gas in cubic feet if divided by 379 will show the number of mols present. The molecular weight of methane is 16, so 16 pounds of methane would measure 379 cubic feet at 60° F. The molecular weight of hydrogen is 2; then 2 pounds of hydrogen would be a volume of 379 cubic feet at 60° F. under normal atmospheric pressure. A determination of the weight of a known volume of a gas will serve to check the chemical analyses. Numerous other examples illustrating the practical applications of the theory might be mentioned.

ORIGINAL REFINERY AND PRODUCTS

I have read your statement in The Oil and Gas Journal, October 24, 1929, concerning the original petroleum refinery and would appreciate a more detailed account of this together with any information you may have about the products which were made by the first refiners.—T. G. R.

There were a number of refineries in the United States prior to the drilling of the Drake well in 1859 but these made a lamp oil from coal, and they operated along similar lines to the established practice for the distillation of shale and coal in Scotland. The original distillation of bituminous materials dates back to very ancient times.

A detailed description of the growth of the petroleum refining industry in the United States may be found in History and Romance of the Petroleum Industry, by J. D. Henry, from which the following statements are abstracted:

There was a demand for substitutes to replace animal and vegetable oils that were used as illuminants and lubricants. The trade in lubricating oils was an important one in the early fifties. It called for nearly 500,000 bbls., 31.5 gallons to the barrel, of whale oil and nearly 300,000 bbls. of lard oil, with probably an equal quantity of tallow. There was, therefore, a demand for about 1,000,000 bbls. of these products for illuminating and lubricating purposes before the year in which petroleum was produced on a commercial scale. The first successful attempts to manufacture illuminating oil from coal in America were made by Dr. Abraham Gessner in 1846 from which he obtained an oil which he called kerosene, the name being derived from Greek words signifying wax and oil. The process was sold to the North American Gas Light Co., Hunters Point, N. Y. The Gessner refinery is still (1914) in existence, being the property of the Standard Oil Co. since 1874.

Thomas Kier manufactured salt obtained from salt water wells near Tarentum, Pa., and in 1840 a few months after one of the wells had been pumping brine, petroleum mixed with salt water made its appearance. A similar condition developed on adjoining properties. These oil strikes greatly annoyed the manufacturers of salt. The first effort to make use of this oil was to sell it as a medicine "to cure ailments prevailing among mankind," but no large demand was created, and Samuel Kier, a son, found that a good burning oil could be obtained by distillation, for which purpose he set up a small still some time soon after. According to a statement by William L. Kier, a son of Samuel Kier, the first still was of cast iron and was stolen while they were removing the refinery from Pittsburgh to Lawrenceville. The second still was of wrought iron with a charging capacity of 5 bbls. "You can safely say that carbon oil must have been made by my father in the forties, for we have papers showing sales of it in 1851."

Another report by McLaurin indicates that Kier experimented with petroleum for a light about 1848 searching for some means to get rid of the offensive smoke and odor. "Fitting a kettle with a cover and a worm, the first outcome of the embryo refiner's 1-bbl. still was a dark substance little superior to the crude. Then following the discovery that the desired end could be partly obtained in that manner, he tried double distillation. . . . Slight changes in the camphene lamp enabled him to burn the distillate without smoke."

Quoting from the Oil Regions of Pennsylvania, published in 1865, William Wright said: "The refining of petroleum or preparing it for illuminating and lubricating purposes is one of the new departments of industry created during the past five years." The object of the refinery "is two-fold, to free the liquid from impurities with their offensive smell, and to render it unexplosive. In both, the most triumphant success has attended the efforts made; and rock oil, as it affords the cheapest and most brilliant light known, is equally safe and inoffensive. For much of this success the country is indebted to Samuel M. Kier of Pittsburgh, who had been giving his attention to the subject as early as 1849."

Manufactured by the Oil Well Supply Company, Pittsburgh, Pa.

Service Insurance For "Oilwell" Non-Make-And-Break Rotaries

Power application is always smooth, uniform and dependable in "Oilwell" non-make-and-break rotaries because the pinion shaft is mounted on Timken Bearings.

At this vital service point Timkens are relied upon to serve three major purposes, namely to hold the pinion shaft in rigid alignment and protect it against torsional strain, to eliminate friction and to carry thrust-radial loads—a variety of duties for which they are well-fitted by reason of the exclusive combination of Timken tapered construction, Timken *POSITIVELY ALIGNED ROLLS* and Timken-made steel.

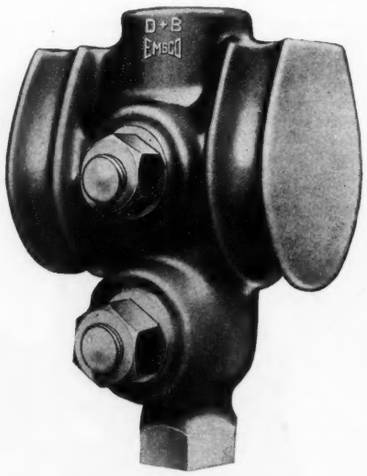
The result is that correct contact between pinion and ring gear is permanent. Gears are guarded against breakage. Power wastage is prevented and continuity of rotary service assured.

Timken Bearings have established outstanding performance records in all types of oil field equipment.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN *Tapered Roller* **BEARINGS**

ANOTHER
NEW
DEVELOPMENT



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EMSCO STEEL EQUIPPED WELLS ARE SAFE

Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

MORE ON WORKING BARRELS

Several weeks ago I asked you some questions on the use of working barrels, which you answered. I would like to ask a few more. About what is the lowest depth at which a liner working barrel can be used with a wall thickness of one-sixteenth inch? What with a wall thickness of one-eighth inch? The outside diameter to be 1⅞ inches in each case.

As I understand it the only danger would be that of crushing the working barrel in below the working valve, as the pressure would be equalized on the rest of the barrel.—A. C.

Without knowing the fiber strength of the material used in making the working barrel, it is impossible to say with certainty what formulas applying to internal pressures in cylinders would fit your case. Furthermore it has been the practice of tube manufacturers to determine the strength of their pipe by actual experiments rather than to rely wholly upon theoretical data.

The common formula used in determining the strength of tubes, pipes and cylinders is written as follows:

$$\frac{p}{f} = 2\frac{t}{D_2}; \quad p = 2f\frac{t}{D_2}; \quad t = \tfrac{1}{2}D_2\frac{p}{f}$$

The symbols used follow: D_1, outside diameter in inches; D_2, inside diameter in inches; t, thickness of wall in inches; p, internal gauge pressure, or difference between internal and external fluid pressure, in pounds per square inch; f, fiber stress in wall in pounds per square inch.

Kent's handbook states that tests made on cast-iron cylinders 20 inches long, 18⅛ inches internal diameter and three-fourths inch thick developed the fiber strength of the iron as being from 9,040 to 10,200 pounds per square inch.

These facts indicate that your problem is complicated and it is suggested that you consult some mechanical engineer who can discuss it with you. As details develop he can get information from you as needed. There are too many variables in this problem to permit giving you much practical advice by correspondence.

The foregoing formula was worked out to determine the pressure required to burst one-sixteenth-inch and one-eighth-inch cast pipes using 10,000 as the fiber strength of the material. By this formula it is found that these pressures are 1,430 and 3,080 pounds respectively.

If this working barrel is to be put into a 5,000-foot well the pressure developed by the weight of the fluid column would be approximately 2,165 pounds per square inch, so the one-sixteenth-inch wall barrel would be much too weak, while the one-eighth-inch barrel would have a reserve strength of 915 pounds only, much too small for a condition of this kind.

GAS SAND GIVING TROUBLE

We use the cable tools exclusively in this district and in two wells I have drilled I have had a great deal of trouble getting through a gas sand. Can you give me any suggestions that would help us?—N. Y. S.

This problem would probably be solved by different drillers in different ways, but one way to drill through a gas sand with the well under control is to use the so-called "circulating system" that has been effectively used in drilling through unconsolidated sands and caving formations with cable tools.

This method involves the use of the complete standard cable tool equipment and in addition a pair of high-pressure slush pumps such as used in rotary drilling, with flexible connections to the circulating head supported by a massive swinging spider on which the casing in the well is suspended.

The purpose of the additional equipment is to provide a means of mudding off the gas sand. Mud-laden water is pumped down through the casing, passes under the casing shoe, which is lowered as the bit progresses, and back to the surface in the annular space between the casing and the walls of the well. In order to keep this space clear, the casing frequently is raised a few feet and lowered with the swinging spider, which is supported by a large hook and hoisting block strung on the casing line from the derrick crown block. The mud-laden fluid also serves as a means of washing out the loosened material cut by the drill and bailing is not necessary.

The cable tools operate in the usual manner except that the drilling cable works through a stuffing box in the circulating head, which prevents leakage of the mud-laden fluid as it is pumped down through the casing. The stuffing box is so designed that it does not seriously interfere with the lowering and withdrawal of the drilling tools. A polished plunger is fastened around the drilling cable by means of rope clamps, which on being released allow the cable to be drawn from the well through the circulating head until the rope socket emerges from the well.

The bolts that fasten the stuffing box to the circulating head are then loosened and the entire top of the head, with the polished plunger and stuffing box is lifted out with the tools, leaving the full cross-section of the casing free for bailing or other purposes.

In some instances where the gas pressure is not too great it has been found possible to drill through gas sands by simply loading the hole with either clear or salt water as the weight exerted by the fluid column is enough to keep the gas from leaving the formation.

Other methods are used, some of them patented, but it is thought that the above suggestions may assist you in solving your particular problem.

SHUTTING OFF TOP WATERS

What are the methods used in the American fields for making formation shutoff of top waters?—L. M., New South Wales, Australia.

Mud-fluid is sometimes used to exclude waters from wells and this mud is pumped into the well under relatively high pressures and will close the pores in the granular rocks because of its power to penetrate into them. In the Oklahoma City Field mud-fluid has been pumped into wells under pressures of 2,000 pounds per square inch to shut off gas and water that had been encountered in the drilling operations.

It is also common practice in that field to pump into the well from 1,000 to 1,500 sacks of cement and place it behind the string of 9-inch pipe. This amount of cement will fill the annular space between casing and hole for a distance of more than 1,000 feet upward from the bottom of the hole and this makes an effective water shutoff for all fluid encountered above the seat of that string of casing. This casing seat is usually 5,250 to 5,500 feet below the surface.

Another factor that has a bearing upon the type of water shutoff used is the method of drilling. If cable tools are used it is customary to set more strings of casing to effect water shutoffs than with rotary drilling. With the rotary drilling method it is known that many light flows of water have been effectively shut off by the mud-laden fluid used in drilling and this shutoff has been satisfactory and prevented water from entering the well. The well is carried downward until the predetermined casing point is reached and then the space back of the casing is filled with as much cement as necessary to form an effective seal against any water entering from the upper strata.

United States Bureau of Mines Bulletin 232, "Manual for Oil and Gas Operations," prepared by T. E. Swigart and C. E. Beecher, says on this subject: "A formation shutoff is made by landing casing on a shoulder or seat in an impervious formation. The effectiveness of this type of shutoff depends on the close bond between the casing shoe and the walls of the hole, and, to some degree, on the effectiveness with which the sharp edge of the shoe cuts into the formation and makes a tight seat.

"Cavings back of the pipe which pack above the shoe sometimes assist in effecting a shutoff. If the bond between the casing shoe and the wall of the hole is poor, water, especially if under pressure, readily finds its way to the bottom of the shoe. The shutoff then depends entirely on the thin contact between the cutting edge of the shoe and the formation, and any irregularities of this contact will allow water to enter the well.

"When casing is landed in a hard formation, the size of the hole is usually reduced to the exact diameter of the casing shoe for a short distance—possibly twice the length of the shoe—above the casing seat. If the casing must be landed in a shale, clay or gumbo, the hole may be reduced to a size somewhat smaller than the outside diameter of the casing shoe, so that the shoe will cut its own hole and thus effect a tight fit.

"Driving casing to a seat or raising it two or three joints and allowing it to fall in attempts to force the shoe onto its seat is dangerous practice which may result in pinching the shoe or in damaging the casing higher up.

"Wall packers for excluding top water from the oil sands are not recommended for permanent water shutoffs. Although wall packers are frequently used with apparent success, the effective life of the shutoff may be limited because of the deterioration of the expanding material, usually rubber. Wall packers are handy, however, for making temporary shutoffs in some fields to test shows of oil and gas found unexpectedly during drilling. If the oil or gas sand is penetrated by the bit, there may be no opportunity to make a casing seat for a temporary formation shutoff. To make a satisfactory test, the upper waters must be shut off. This may be done by setting a hook-wall or disc-wall packer, or in some cases even an anchor packer, above the same on a string of pipe.

"Cement is used in oil wells for a number of purposes. It is placed behind casing to shut off top water and to prevent the migration of oil and gas around the shoe. It also reinforces the casing and the casing seat, thus insuring a permanent shutoff in soft formations. Sometimes cement is forced back of the casing to seal oil, gas and water in their respective strata. Occasionally it has been desirable to use enough cement to reach from the shoe to the surface. Cement is also used for shutting off bottom water, to plug abandoned wells, and for many special oil well jobs to which it is adapted."

WHY WAS IT CALLED THAT?

DONKEY PUMP

Early models of the handy little pump commonly used on jobs of a temporary character about the oil lease and elsewhere sometimes had an irritating habit of stopping when nobody wanted them to and remaining stubbornly motionless when the customary methods, supplemented by sundry expedients and harsh language, were employed to start them. These donkey-like peculiarities prompted the name "donkey pump." Applied in derision and wrath at first, the name stuck to the machine after its youthful faults had been corrected and it had become wholly tractable and trustworthy.

SHALLOWEST OIL PRODUCTION

I am credulous about a statement that the shallowest oil production has been found in western Pennsylvania. I think the statement was based on the fact that the Drake well near Titusville was about 69 feet deep and that other wells in the Oil Creek area drilled later were well under 200 feet deep.—S. M. I.

Records at hand reveal little shallower production than that found in the Oil Creek Valley, but leaving that historic area and going over into Allegheny, Washington and Butler Counties, it is found that much greater depths prevail, although these too seem extremely shallow when compared with the depths reached in California for instance.

It might be more in keeping with facts to designate the southern part of central Kentucky as the area of shallowest oil production in the United States. This area embraces Allen, Barren, Hart, Larue, Monroe, Metcalf, Green, Taylor, Casey, Adair, Russell, Cumberland and Clinton Counties. Wells in this district run about 300 feet deep. The Phelps well on Bear Creek in Cumberland County was only 47 feet deep and according to the United States census report for 1880 it "was a great producer." A well in Allen County was 51 feet deep. Wells in the vicinity of Petroleum, Allen County, were about 91 feet deep.

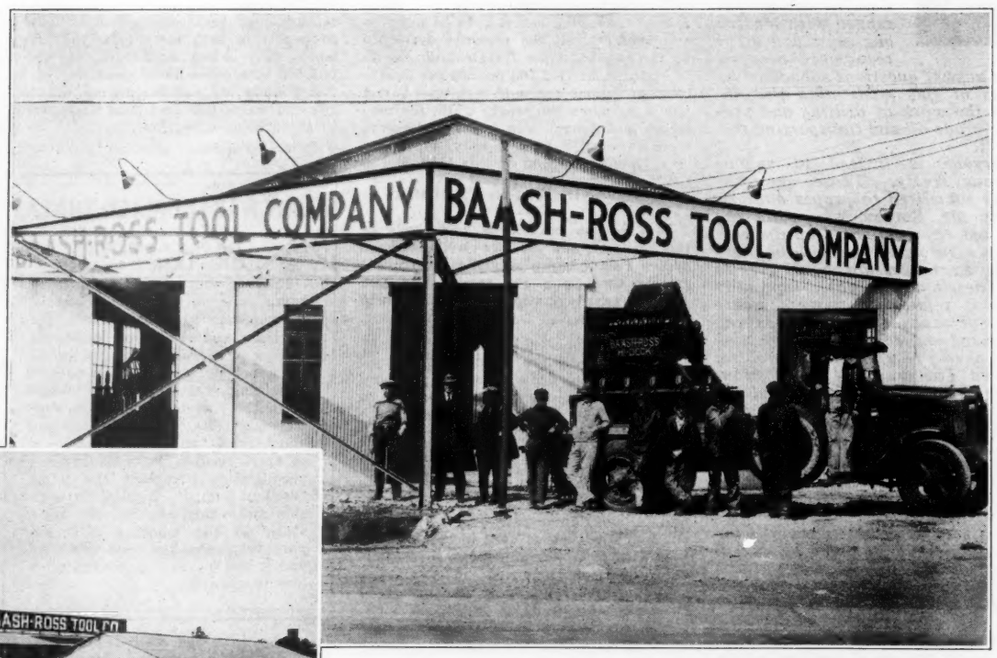
Now »

A PIONEER BUILDER OF DEEP

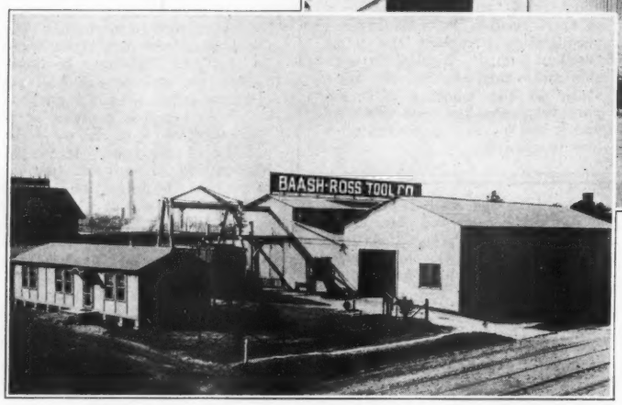
L. F. BAASH

H. C. ROSS

—mechanics in the original shop —still planning shop activities to meet field requirements



OKLAHOMA CITY SHOP—1559 EAST G STREET, CAPITOL HILL

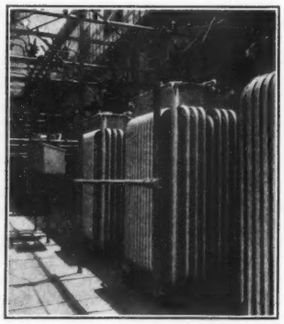


DISTRICT OFFICE AND WAREHOUSE, HOUSTON, TEXAS

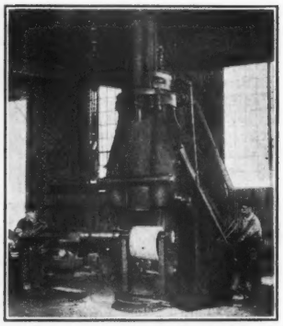
FIELD SHOPS as convenient as possible to drilling operations . . . open 24 hours every day . . . experienced mechanics to make what field men want, when they want it and as they want it . . . completely equipped for general machine and repair work, and pipe slotting, inside and outside cutting, and perforating in shop or field . . .

This is, briefly stated, the policy of the new Baash-Ross Oklahoma City shop . . .

This is the policy of all Baash-Ross shops . . .



POWER TRANSFORMERS

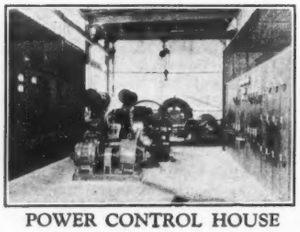


BLACKSMITH SHOP

BAASH-ROSS

General Offices and Plant—5512 Boyle Avenue

Export Department . . . New York, *30 Church Street*
District Offices: Houston, Texas . . *1816 Nance Street*

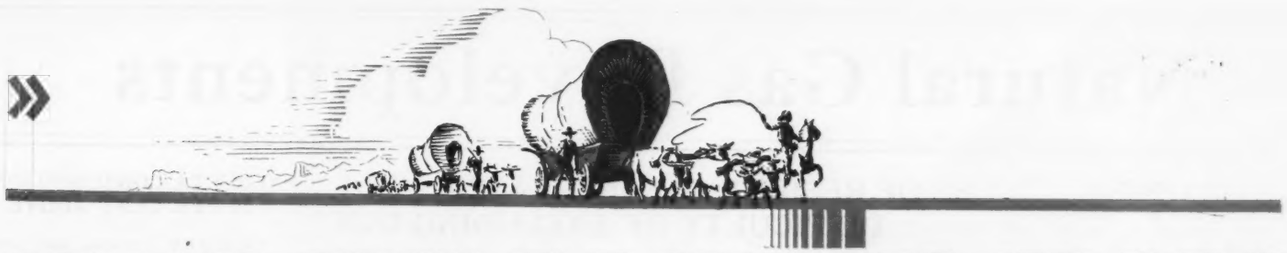


POWER CONTROL HOUSE

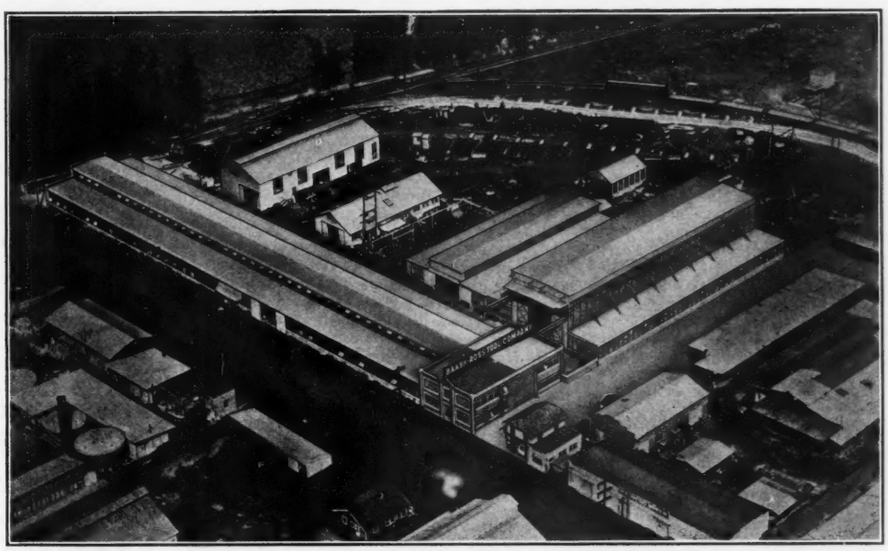
BLACKSMITH FURNACE

TOOLMAKING SHOP

TYPICAL FIELD SHOP

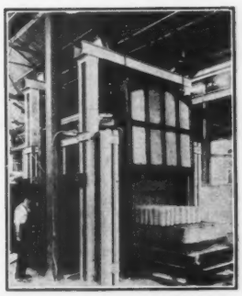


DRILLING EQUIPMENT COMES TO SERVE THE MID-CONTINENT



MAIN LOS ANGELES PLANT—83,078 SQ. FT. MODERN MANUFACTURING EQUIPMENT

PYROMETER HEAT TREATING CONTROL

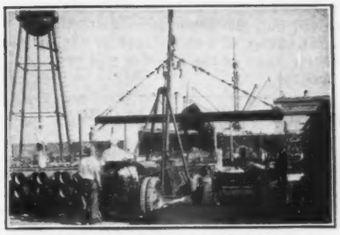


G. E. ELECTRIC HEAT TREATING FURNACE

under which a small building housing a few second-hand machines has expanded to 83,078 square feet of modern, efficiently equipped manufacturing plant in the short span of ten years . . .

It will be the hope and effort of Baash-Ross men at Oklahoma City, as well as at the Los Angeles plant, to work with Mid-Continent operators in developing tools to meet deep drilling conditions in the Mid-Continent, in the same spirit of co-operation that has met with success in Signal Hill, Santa Fe Springs, Kettleman Hills, and other fields during ten years of Baash-Ross history . . .

OIL TOOLS MACHINE SHOP



WILMINGTON PIPE YARD

TOOL COMPANY

Box 1297 Arcade Station—Los Angeles, California

Tulsa, Oklahoma . . . . . *International Supply Company*
Oklahoma City . . . . . *1559 East G Street, Capitol Hill*

THE BAASH-ROSS PLANT ABOUT 1921

J&L PIPE B-R

Baash-Ross Tool Company
Box 1297 Arcade Station, Los Angeles
Please place my name on mailing list to receive bulletins of Baash-Ross tools as issued.

Name _____

Company _____

Address _____

Natural Gas Developments

OHIO, WEST VIRGINIA AND KENTUCKY MERGER

NEW YORK, Mar. 15.—Consolidation of a number of natural gas companies operating in West Virginia, Kentucky and Ohio into the Appalachian Gas Corp., is now under way with five companies forming the nucleus of the organization.

The companies mentioned as included in the consolidation are the Ohio Southern Gas Co., Wayne United Gas Co., Ohio Valley Gas Corp., Ohio-Kentucky Gas Co. and the Alleghany Gas Corp. When the proposed merger has been consummated the new corporation will own or control properties with a total of 300 miles of pipe lines, and gas rights in more than 200,000 acres, together with oil rights either owned or controlled on more than 160,000 acres.

The various gas reserves, developed and undeveloped to be controlled by the new corporation, will be adjacent to the extensive systems controlled by the Columbia Gas & Electric, Standard Gas & Electric and the Standard Oil Co. of New Jersey, and their subsidiary and affiliated units. These various lines are in many cases interconnected with each other and form one of the largest systems in the country.

TO USE NATURAL GAS IN ELECTRIC PLANTS

SAN FRANCISCO, Calif., Mar. 15.—The State Railroad Commission announces that arrangements have been completed whereby the Southern California Edison Co., the Los Angeles Gas & Electric Corp. and other similar utilities in southern California will use surplus natural gas as fuel for the generation of electric power instead of blowing the gas into the air to be wasted.

"The utilization of this surplus gas," the commission said, "will result in a substantial economic saving, both in the conservation of the natural gas itself and also in the cost of operation of the gas and electric utilities involved. The consummation of this arrangement is in line with the policy of conservation now being so aggressively sponsored by state, federal and industrial agencies."

Southern California Edison will use surplus gas it now purchases under a year-around contract with producers in the Ventura and Long Beach Fields in its large generating plant at Long Beach, the commission said.

Not only will large quantities of the gas be conserved but, the commission pointed out, a great saving of water stored by the hydroelectric units of the utilities will result as well.

SUBSIDENCE CAUSES EXPLOSION

CHATHAM, Ontario, Mar. 15.—Another problem for gas operators was indicated when the house of O. L. Archer at Edmonton, Alberta, was wrecked by a gas explosion. While gas was not in use in the house, it apparently entered the basement through a crack coming from a leak in a low pressure main 12 feet away. The leak and the crack were both thought due to subsidence, resulting from slipping of the river bank or coal mining operations.

MEDICINE HAT SYSTEM

CHATHAM, Ontario, Mar. 15.—T. Shepherd has been appointed gas engineer of the Medicine Hat, Alberta, municipal system, succeeding City Engineer Ritchie. The city delivered 319,000,000 feet of gas in January, establishing a new record; while the cost of production was lower than for January, 1929.

USE OF RESIDUE GAS INCREASES DIFFICULTY OF EXCLUDING DUST

By N. D. Holman
Cities Service Gas Co.*

Modern methods have brought modern problems to the natural gas man. Since the oil industry has introduced residue gas as one of the large sources of supply, much trouble has been experienced by both main line and distributing companies in keeping dust formed by a corrosive action, out of compressor cylinders and domestic burning appliances. Consequently, methods of cleaning and delivering the product to the burner tip have kept pace with the development of the latest model kitchen range or other efficient appliance through which the product is utilized.

Sources of supply are from dry gas wells, shale gas wells, and residue or casinghead plants. Each source may impose a condition in the nature of the gas to require special cleaning or processing either to eliminate serious operating problems or to insure a perfect fuel at the burner tip. Sand gas, or dry gas as it is usually spoken of, comes from wells ordinarily free from water or vapor troubles and is more easily handled than gas from other sources. Syphon tubing is placed in some wells for the purpose of lifting liquid off the sand to allow free flowing of the gas. Drips on field gathering lines will catch sand or rock particles and such liquids as naturally condense from the flow of gas. It is customary to have a drip close to the well, and often the purchase meter will be on a drip header. The condition of the sand will determine the number of the drips on field gathering lines. It is not uncommon to find as many as three drips on a short gathering line. They will catch water or gasoline and are blown by the field man in charge as often as conditions demand.

Field Drips of Simple Design

Field drips are of simple design; a 4-inch line will be expanded to a 6-inch with two 4-inch legs to an 8-inch tank which placed horizontally, below the regular flow of the pipe line, will catch the liquids. Allowing the gas to expand acts as a condensing method and no attention is necessary other than blowing. Drips in main lines are advisable at certain points regardless of the dryness of the gas transported. These drips vary in design according to whims of the designer but generally allow for expansion, a change in direction of flow or circulation, and sometimes have impingements on baffles or other methods to effect a dripping out of fluids, or dust particles. Having the gas dry and the line free from water will practically assure a clean product to the consumer, and few operating troubles will be experienced. Dry

(Continued on Page 156)

*Before Oklahoma Utilities Association, Tulsa, March, 1930.

GAS FOR IRRIGATION

LOS ANGELES, Calif., Mar. 15.—Kettleman Hills gas as an aid to irrigation of farm lands is the latest proposal to afford an outlet for dry gas now blowing into the air. A. F. Nunes, president of Felix Oil Co., half owner of the No. 1 Felix well, is sponsor of the new plan, which he claims will provide Fresno and Kings County ranchers a low-rate natural gas for use in pumping water from irrigation wells and for domestic purposes.

Mr. Nunes states he is in position to build the line and install necessary equipment. His announcement follows the State's injunction proceedings directed against Kettleman Hills operators to prevent wastage of gas.

GAS FOR FAYETTEVILLE, TENN.

The Fayetteville (Tenn.) Natural Gas Co. has secured a franchise to furnish natural or artificial gas for that city. Two wells have struck gas and the company is still prospecting but is not sure it will find sufficient natural gas to supply the city. The franchise allows either natural or artificial gas. If sufficient natural gas is not found the company expects to put in gas composed of butane and propane fractions.

NEW REGULATING STATION

CHATHAM, Ontario, Mar. 15.—Canadian Western Natural Gas Co. of Calgary will establish a new regulating station and office at Claresholm, Alberta, and build residence and garage for its service man, transferred from Stavely.

FIRST GAS TANK

After more than 120 years of existence, the first gas tank ever built is still standing at Smethwick, England. The wrought iron cylinder was erected in 1808 by William Murdock, founder of the manufactured gas industry.

NEW MEXICO GAS FRANCHISES

The franchise granted to Albert T. Woods, president of the Pecos Valley Gas Co. some few weeks ago by the city council of Las Vegas, N. Mex., to supply that town with natural gas, was approved by the voters at a special election. This company is marketing gas from the Lea and Eddy County Pools in the southeastern part of New Mexico. The Santa Fe city council two weeks ago granted a franchise to C. W. Murcheson of the Southern Union Gas Co., which is operating in the northwestern part of the State. Albuquerque has not yet taken action on the pending applications.

SHELL GAS & ELECTRIC CO.

SAN FRANCISCO, Calif., Mar. 15.—Formation of the Shell Gas & Electric Co., Ltd., to handle natural gas sales of the Shell Union Oil Co., is a company matter and has no significance whatever as far as the public is concerned, Shell officials told Dow-Jones. Rumors that Shell will enter the gas or electric business are unfounded, the new company being formed merely to separate the sales of gas from other divisions of the company. It will be entirely owned by the Shell company.

SOUTHERN NATURAL GAS CORP.

Tennessee Coal, Iron & Railroad Co. has begun to take natural gas at its Ensley, Ala., open-hearth plant under the contract recently closed with Southern Natural Gas Corp. This plant is to use about 1,250,000 feet a day at present, the amount to be gradually increased to approximately 5,000,000 feet daily. Bessemer mill of the Tennessee company is scheduled to be connected April 1 for natural gas service and will take about 1,000,000 feet initially. Atlantic Steel Co., near Atlanta, is to take 1,000,000 feet a day shortly from the Southern Cities Public Service Co., supplied by Southern Natural Gas.

ALBERTA CONSUMPTION 50 PER CENT ABOVE 1928

CHATHAM, Ontario, Mar. 15.—The consumption of natural gas in Alberta during 1929, showed an increase of more than 50 per cent, 23,225,000,000 feet compared with 14,198,959,000 feet in 1928. The major part came in from the fields south of Calgary, which delivered 16,680,000,000 feet compared with 8,144,890,000 feet in 1928. Turner Valley Field contributed 16,267,000,000 feet against 7,393,690,000 feet in 1928; while, due to the policy of conservation, Foremost Field delivered 366,000,000 feet compared with 712,000,000 feet in 1928. Of the gas used from these areas, 5,825,000,000 feet was used for domestic purposes, 1,140,000,000 feet for commercial and 9,715,000,000 feet for industrial purposes.

The Viking Field, which supplies Edmonton, delivered 2,925,000,000 feet in 1929 compared with 2,377,769,000 feet. From the Wainwright-Fabyan area, 755,000,000 feet were delivered, compared with 126,000,000 feet. The volume of gas from the Wetaskiwin Field amounted to 40,000,000 feet in 1929 against 50,000,000 feet. In southeastern Alberta, production from the Medicine Hat Field was slightly less, being 2,260,000,000 feet against 2,591,000,000 in 1928. For the Redcliff wells the figure was unchanged, 860,000,000 feet.

UNITED GAS COMPANY REPORTS INCREASED SALE

HOUSTON, Tex., Mar. 17.—Total volume of natural gas produced by and received by United Gas Co. under exclusive gas purchase contracts during 1929 was 46,036,607,000 feet, an increase over the 1928 figures of 7.87 per cent, or 3,359,911,000 feet, according to a statement at the offices of the company here.

Of the 46,000,000,000 feet produced and received during the year, 19,570,761,000 feet were directly produced by United Gas Co.'s subsidiaries from their leaseholds. This volume represented an increase of 1,597,922,000 feet, or 8.89 per cent over 1928. Gas purchased under exclusive gas purchase contracts totaled 26,465,846,000 feet, an increase over 1928 of 1,761,989,000 feet, or 7.13 per cent.

The company reports its sales during 1929 reached 45,656,201,000 feet, an increase over 1928 of 3,905,764,000 feet, or 9.36 per cent. The sales movement was divided in 1929 as follows: Domestic sales, 4,264,580,000 feet; commercial, 515,049,000, and industrial, 40,879,572,000 feet. Meters in service throughout the company's system at the end of 1929 totaled 85,391, a net increase of 10,748, or 14.3 per cent.

To supply this steady expansion of its service, the company states that through its subsidiaries it has in the North Louisiana fields an estimated reserve of 189,000,000,000 feet, and in the Texas coastal fields the estimated reserve available to the company is 350,000,000,000 feet. During February the company reports its sales were in excess of 1,000,000,000 feet daily.

NATURAL GAS FOR WASHINGTON?

WASHINGTON, D. C., Mar. 17.—There is continued discussion of the possibility of bringing natural gas to the District of Columbia. Recently a report from New York stated that plans were in progress to pipe natural gas from West Virginia and Kentucky fields to Norfolk, Va., possibly going via Richmond, Va. That would bring natural gas within 100 miles of Washington.

Measured Steam Checks Operation *and Improves Results*

THE Atlantic Refining Company finds that it is well worth while to measure steam to their tube stills. Many other refineries likewise keep a close check on their steam consumption.

Brown Electric Flow Meters give accurate, dependable records. They *record* on the chart both *rate* of flow and *volume*. It is not necessary to use a hand planimeter on a Brown Electric Flow Meter chart to get data. Ask for further facts.

Also, look into the possibilities in Brown Remote Type Instruments —Catalog No. 7501 is now ready. Write for a copy.

THE BROWN INSTRUMENT COMPANY
4488 Wayne Ave., Philadelphia, Pa.
Branches in 20 principal cities.

Brown Electric Flow Meter

on the Inductance Bridge Principle

"To measure is to economize"

Patented Features Make

Parkersburg Construction Gives

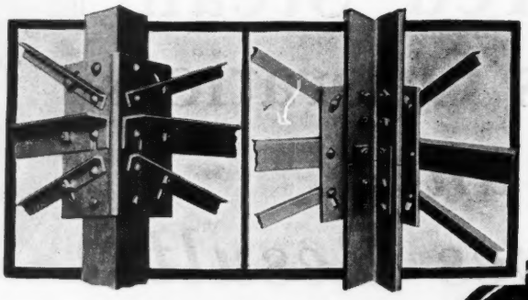
THROUGHOUT the oil country Parkersburg Steel Derricks are showing unsurpassed erection speed records. Complete erection in a day is a common occurrence, due to these patented features.

Patented "Bolt and Slot" joints for girt, brace and leg connections not only speed erection but lessen liability of bolts loosening by 50 per cent. Rig builders' time is reduced by having only to tighten the nuts. Legs are interchangeable, further simplifying and speeding erection.

Parkersburg design carries the load *straight* down the derrick legs and butt-to-butt contact of leg joints eliminates all shear strains on the bolts.

Unusual strength and rigidity are assured by the construction of Parkersburg Steel Derricks. There is a size and type for every well, finished with a coat of aluminum, or galvanized, as desired.

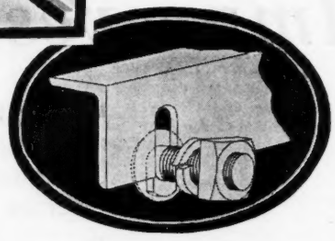
Get in touch with our nearest field representative today for complete information.



Detail of assembly at left shows outside and inside view of a joint, with girts and braces in position. Note how slots in leg sections and joint plates engage bolts; also gusset plates for increased bearing surface and how butt-to-butt contact is made.

Detail of Leg Joint of No. 4901 A.P.I. Derrick

To the right is detail of slot bolt connection. Note lug under head of bolt which slides into slot in leg, girt or brace, positively preventing bolt from turning. Tightening is a "one wrench" job, *and a one-time job, as chance of loosening is reduced 50 per cent.*



102-A

THE PARKERSBURG RIG AND REEL COMPANY

"Erection in a Day" Easy

Added Strength for Any Service

Parkersburg Products

Steel Derricks and Crown Blocks

Rig Irons

Portable Drilling Machines
(Wood and Combination-Steel)

Chain-Driven Sand Reels and Bailing Reels

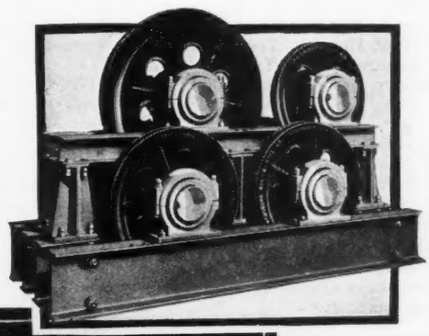
Steel Wheels—Bull, Calf and Band

All-Steel Standard Rigs

Bolted Steel and Aluminum Tanks

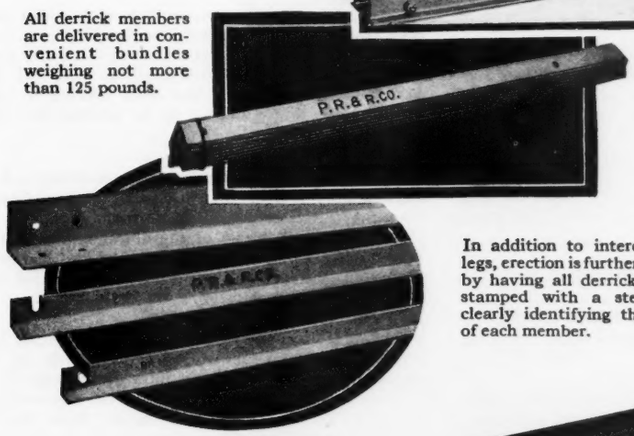
Miscellaneous—Drilling Equipment Steel Walking Beams and Pitmans

We Subscribe to A.P.I. Standards



A Parkersburg Roller Bearing Crown Block makes a perfect combination with Parkersburg Steel Derricks. These new Crown Blocks are a quality product designed to meet all oil-field requirements.
Built in single and double-deck types, with self-aligning roller bearings with positive acting Alemite lubrication. Manganese Sheaves are optional. These Parkersburg Crown Blocks stand the severe test of deep drilling service.

All derrick members are delivered in convenient bundles weighing not more than 125 pounds.



In addition to interchangeable legs, erection is further simplified by having all derrick members stamped with a steel stencil clearly identifying the location of each member.

Main Offices and Works

PARKERSBURG · WEST VIRGINIA

NEW YORK · · · TULSA · · · FORT WORTH · · · HOUSTON

Branches In All Active Fields

MEN KNOWN IN OILDOM

A. W. Peake

With his election recently as a member of the board of directors and vice president in charge of production activities of the Standard Oil Company of Indiana, A. W. Peake became co-ordinator of the oil-producing operations of the various subsidiaries through which the Indiana company is obtaining crude petroleum.

On his graduation in 1912 from Stanford University, where he took the course in geology and mining, Mr. Peake went to work in the field for the Ventura Oil Company in California, there getting the practical experience he desired. In 1916 he became field superintendent for the Midwest Refining Company. Rising through various positions, he was appointed general superintendent in 1922 and a director in 1925. He was transferred to the Dixie Oil Company, producing subsidiary of the Standard of Indiana, in March, 1928, and made its president.

Mr. Peake's management of the Dixie company, along with his extensive knowledge of the producing branch of the oil business, led the parent company to choose him as the head of its new production department.

PERSONAL PARAGRAPHS

L. B. Marcus, independent operator of Midland, Tex., has moved his headquarters to Fort Worth, Tex.

* * *

Secretary Alther and Dr. Gustav Egloff of the Universal Oil Products Company have been visiting refineries in California.

* * *

Frederick G. Clapp, consulting geologist, with offices at 50 Church Street, New York City, is leaving Paris, France, for his home.

* * *

T. J. McMahon, vice president of the Texas Pipe Line Company, Houston, Tex., spent a few days in the Wichita Falls district recently.

* * *

Robert B. Campbell, independent operator and consulting geologist of San Angelo, Tex., was in San Antonio a few days on business.

* * *

L. L. Machia, manager of oil field and power unit sales for the Climax Engineering Company, Clinton, Iowa, has been visiting the Mid-Continent.

* * *

S. E. Towery has been placed at the head of the new department which the Louisiana Oil Refining Corporation has created to handle details connected with filling station and other realty activities.

Bruce McKague, independent operator of San Angelo, Tex., has returned home after having spent a few days in Fort Worth, Tex., on business.

* * *

W. T. Ford, chairman of the Owens-Illinois Glass Company, has been elected president of the Bolsa Chica Oil Corporation, succeeding Irving V. Augur, deceased.

* * *

E. H. Patterson, chief scout of the Shell Petroleum Corporation in the Gulf Coast division, Houston, Tex., has announced the arrival of a baby daughter.

* * *

Earl B. Noble, assistant chief geologist of the Union Oil Company of California, and Mrs. Mary Elizabeth Jacobs Hallgarten of Pasadena are on their honeymoon.

* * *

E. J. Hesser of Houston, Tex., has been appointed by the Pure Oil Company as district superintendent of its drilling in the Sweet Lake Field of Cameron Parish, Louisiana.

* * *

Carl J. von Bibra and Walter R. Cowan of Los Angeles were re-elected president and vice president, respectively, of the Exeter Oil Company at the annual meeting.

* * *

A. G. Maddren, chief geologist of the Houston Gulf Gas Company and affiliated companies, spent a week in Shreveport and other points in northern Louisiana on business.

* * *

Frank W. DeWolf of Houston, Tex., vice president and general manager of the Louisiana Land & Exploration Company, has returned from a two-week trip to New York.

* * *

Charles S. Jones, vice president of the Rio Grande Oil Company, has returned to the company's Los Angeles office following an absence of a little more than a week spent in the East.

* * *

C. M. Leonard, chairman of the board of the Louisiana Oil Refining Corporation has been in Shreveport, La., for several days discussing affairs with local officials of the company.

* * *

Johnny Clark, scout for the Phillips Petroleum Company at Fort Stockton, Tex., was taken suddenly ill at San Angelo en route to Fort Worth and was taken to a hospital at San Angelo.

* * *

Paul and Walter Henshaw, San Angelo oil men, and W. Freeman Houser, independent operator, have returned from a two-month business and pleasure trip to Cuba, the West Indies and Venezuela.

* * *

W. M. Walters, scout for the Southern Crude Oil Purchasing Company is recovering from injuries suffered several days ago when his car turned over while he was returning to Shreveport, La., from the Van Field.

* * *

H. P. Oates, who was prominent in the organization and promotion of the Occidental Petroleum Corporation and the Montebello Oil Company, has been elected president of the Huntington Central Oil Company.

* * *

W. R. Wardner has been appointed assistant to Umpire Paul Grimm and will maintain a branch office in the Padre Hotel at Bakersfield, Calif., as he will superintend curtailment work in the San Joaquin Valley.

* * *

J. Edgar Pew, first vice president of the Sun Oil Company at Philadelphia, Pa., stopped over a few days in Tulsa en route to the company's offices at Dallas where he will spend some time attending to business at his old desk.

* * *

B. R. Muirhead has been advanced from assistant treasurer to treasurer of the Arkansas Natural Gas Corporation with headquarters at Shreveport, La. Mr. Muirhead went to Shreveport in 1928 with the organization of the Southern Cities Distributing Company, retail subsidiary of the Arkansas corporation and his rise with the Doherty interests has been rapid since he became associated in the Empire Gas & Fuel Company at Bartlesville in 1924.

E. M. King, scout for the Phillips Petroleum Company, formerly located at Big Spring, Tex., has been transferred to Tyler, and R. T. Lutz, scout for the Humble Oil & Refining Company, has been transferred to Tyler, Tex., from Vernon.

* * *

Maj. Charles E. Loane, Jr., of the South West Pennsylvania Pipe Lines Company, Pittsburgh, Pa., accompanied by his mother, Mrs. Charles E. Loane of Oil City, Pa., have returned from a short trip to Baltimore, Md., and Washington, D. C.

* * *

W. O. Prior, president, and H. G. Snyder, vice president, of the Dixie Oil Company, were in Shreveport, La., last week. H. S. Hardin, president of the Southern Crude Oil Purchasing Company, also was a visitor from Fort Worth headquarters.

* * *

R. S. Bynum, head of the land department of the McMan Oil & Gas Company of West Texas, with headquarters at San Angelo, is spending some time in San Antonio on company business. G. C. Potter, chief geologist for the company, Tulsa, is also in San Antonio on business.

* * *

E. D. McCabe, Jr., formerly with the Indian Territory Illuminating Oil Company, Bartlesville, Okla., has been appointed Oklahoma representative for the J. H. McElvoy Company, Houston, Tex., manufacturer of well screen. He will have headquarters at Oklahoma City.

* * *

E. D. Reiter, who, up until recently, was chairman of the California State Oil and Gas Conservation Committee and chairman of the Kettleman Hills Committee, and Miss Charlotte Temple Logan were married at Santa Barbara during the early part of the present month.

* * *

Virgil Whitworth, geologist for three years for the Shell Petroleum Corporation and three years with the Simms Oil Company, is now in charge of the geological department of the Deep Rock Oil Company at Fort Worth, a subsidiary in Texas of the Shaffer Oil & Refining Company.

* * *

E. B. Arnold, oil man of Venezuela, who has been spending four months' vacation in the United States, left Fort Worth via American Airways, Inc., for New York, from which point he will sail for Venezuela. Mr. Arnold has been making a tour of the states via airways, as he prefers the new mode of travel to railroads.

* * *

Mr. and Mrs. Stanley Stinson are spending a few days in Fort Worth. Mr. Stinson is scout and land man for the Humble Oil & Refining Company at Pecos, Tex., and is one of the oldest scouts in the Permian Basin. He is a member of the National Oil Scouts Executive Committee and attended the executive committee meeting at Fort Worth.

* * *

C. G. Hamill of Houston, Tex., was visiting his brother, A. W. Hamill, of Tulsa, last week. C. G. Hamill has compiled a very interesting scrap book of scenes and incidents surrounding the discovery of oil in the Texas Gulf Coastal region. Both Hamill brothers were drillers on the famous Lucas well which opened the Spindletop Field in 1901, when it came in with an estimated flow of 80,000 bbls. per day. The scrap book, which started modestly, has grown into a very large volume and Mr. Hamill declares he cannot see the end of it, with the amount of data he encounters from time to time bearing on the early days of oil in the Beaumont district.

* * *

William Green, vice president of the Pan American Petroleum Companies in Mexico, with headquarters at New York; Ralph Soper, head of the land department of the Pan American, and Carroll H. Wegenmann, chief geologist of the company, made a short visit to Fort Worth, Tex., in conference with Southern Crude Oil Purchasing Company officials. From Fort Worth they will make a tour of the West Texas and Southwest Texas oil fields, later going to Mexico. While at Fort Worth they visited Ben Belt, chief geologist of the Gulf Production Company, who was a visitor at Gulf offices. Mr. Belt is now at Houston, but formerly was stationed at Tampico, Mexico, when Mr. Green and Mr. Soper were also located there.

Furnished with either Spring Clevis or Regular Clevis.

The Sheaves are *Interchangeable* in "Oilwell" Travelling Blocks and Crown Blocks

1024

OIL WELL SUPPLY CO.

NEW YORK—LOS ANGELES—PITTSBURGH, U.S.A.—SAN FRANCISCO—TAMPICO—LONDON
WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

REMOVAL of Millscale

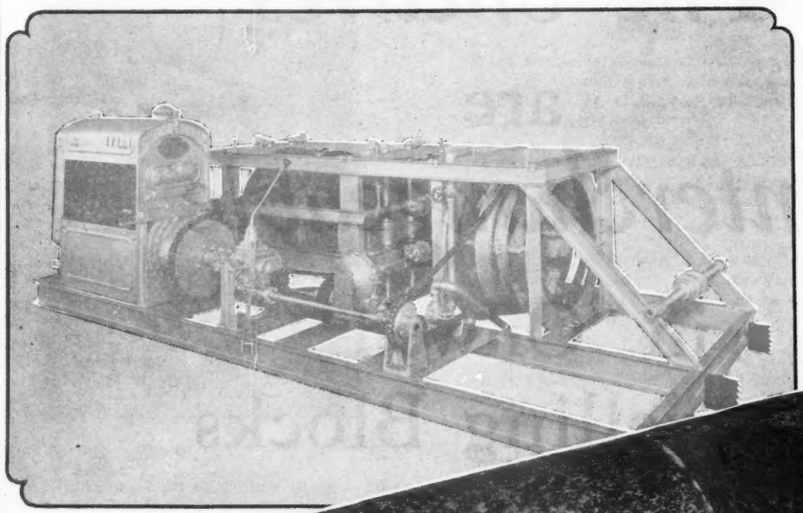
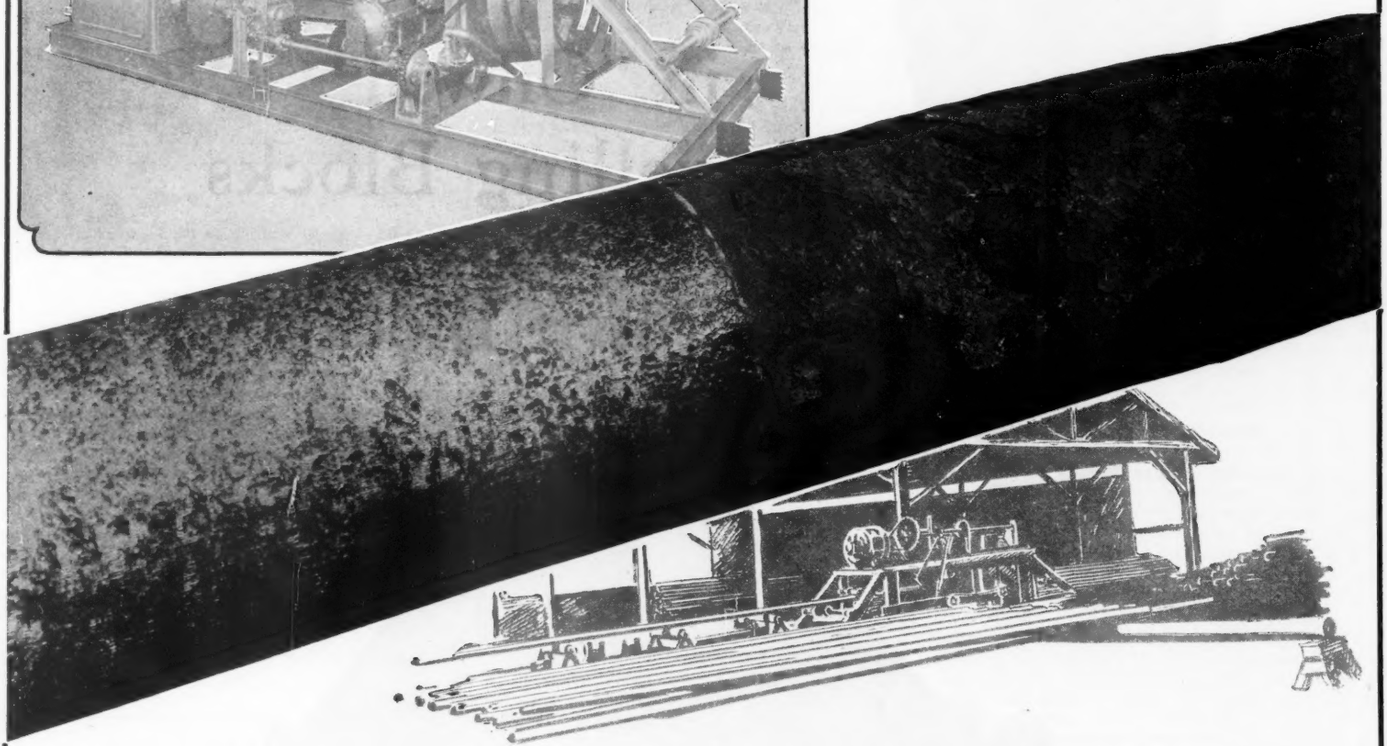


Illustration shows section of an old joint of pipe-line with typical heavy corrosion on one end and pitting on the other. Besides removing corrosion from the surface of pipe, W-K-M Pipe Cleaning Machines clean every particle of rust and corrosion from the pits.



MILLSCALE — the cause of most pipe-line losses—forms, at the time of manufacture, when pipe is exposed to the oxidizing effects of air and moisture. Apparently solid at first, yet very brittle in its texture, millscale shrinks and cracks, due to uneven expansion and contraction. These minute cracks expose the bare steel to air, and thus stimulate both corrosion and pitting through an electrolytic action. Unless millscale is removed, therefore, the life of pipe is greatly decreased.

To prevent these deteriorating effects, millscale should be removed completely, because, in applying preservative coatings, to paint over millscale is obviously to paint millscale and not the pipe. Removal of these loosely adhering masses of scale prepares the surface of the steel for coating, by strengthening the cementing attraction between the pipe and the coating.

After years of research and experience in pipe-line maintenance, W-K-M Company is now in a position to furnish machines which mechanically remove millscale from new pipe, clean rust and corrosion from old pipe, apply priming coats of paint to pipe after cleaning, and equipment for wrapping pipe.

These machines, which are made in both portable and stationary models, can be obtained in a range of types to take care of any kind of pipe maintenance work. The types include:

STATIONARY CLEANING MACHINE — *for conditioning both old and new ¾-inch to 24-*

W-K-M Company, Inc.

INDUSTRIAL, PIPE LINE & OIL FIELD EQUIPMENT

Cable Address "WILKOMAC"

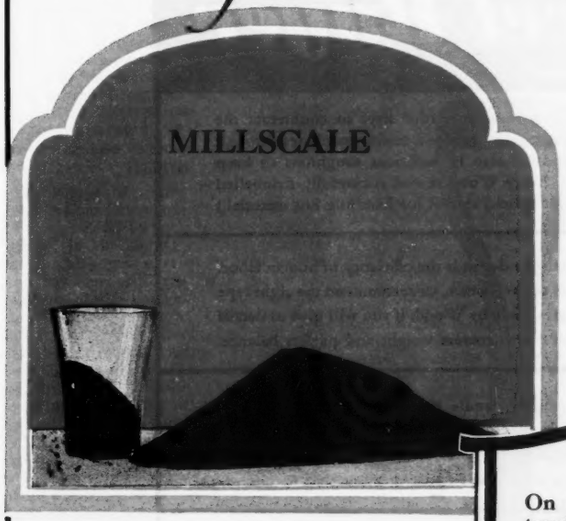
HOUSTON ▲ TEXAS

W-K-M INDUSTRIAL PIPE LINE OIL FIELD EQUIPMENT

Export Office

74 TRINITY PLACE, NEW YORK CITY

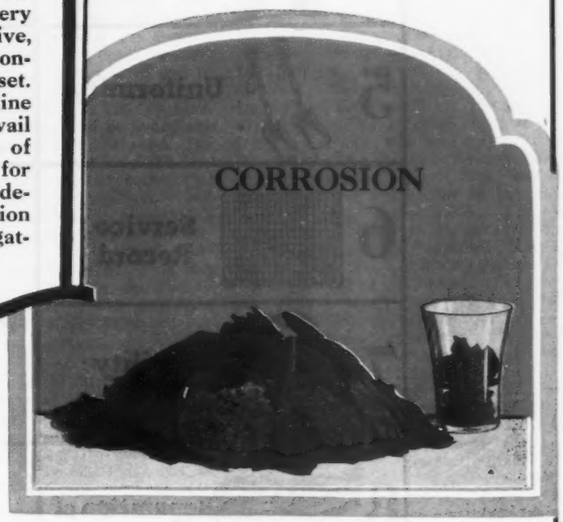
Lengthens Life of Pipe



In the photograph below—Corrosion, the electrolytic process which in the United States annually exacts a toll of one hundred million dollars from the pipe-line industry. The flakes pictured here were removed from a joint of pipe which had lain underground in Oklahoma several years.

Pictured above — the fine scaly masses known as millscale, that accumulates on new pipe at the mills during the cooling-off period after the pipe has been welded. Loosely clinging to the surface, these particles prevent proper adhesion of the priming coat. The millscale shown was removed by a W-K-M Pipe Cleaning Machine.

On this page are shown un-retouched photographs of millscale and corrosion—the pipe-line industry's greatest enemies. W-K-M Company, long pioneering in the prevention of corrosion, has produced and patented machinery which by a positive, inexpensive, and practicable method, can control corrosion from the outset. Executives having pipe-line problems are invited to avail themselves of the assistance of W-K-M engineers. A request for a representative to discuss in detail this new method of corrosion prevention, is in no way obligating.



inch pipe in the yard; SEMI-PORTABLE CLEANING MACHINES—*to be hauled along the right-of-way;* TRAVELING TYPE CLEANING MACHINES—*for work on made-up lines of diameters from 3" to 12";* PIPE WRAPPING MACHINES—*which lay coatings, either hot or cold, and wrap single joints of pipe on the yard;* TRACTOR EQUIPMENT—*for rotating joints of pipe, raising, lowering, and backfilling.*

W-K-M Pipe-Line Equipment is available on a rental basis for those having only occasional need of such equipment; or on a basis of outright sale. Servicing of new pipe is also available at certain pipe mills equipped with W-K-M Cleaning and Priming Machines. (Names on request). These mills are prepared to descale and prime new pipe at a very small cost, thus making possible for the buyer to obtain pipe which is immediately ready to go into the ground.

Graphic Proof

Write for this booklet, which presents a step-by-step record of a complete demonstration, together with an astonishing array of micro-photographs.

W-K-M Company, Inc.

INDUSTRIAL, PIPE LINE & OIL FIELD EQUIPMENT

Cable Address "WILKOMAC"

HOUSTON ▲ TEXAS

Export Office

74 TRINITY PLACE, NEW YORK CITY

8 Checking Points for the Shovel Buyer

(Reprints supplied on request)

1 Hardness and Toughness

The handling of hard material requires a harder steel to counteract the added wear. This is judged accurately by hardness testing machines through the Wood process. There should also be sufficient toughness to keep shovels from becoming brittle. Every Wood shovel is carefully Brinnelled for hardness. (Do not use a heat treated shovel for handling hot material.)

2 Balance

Upon the proper weight and balance depends the efficiency of human labor. (We will help you conduct tests of this nature, or recommend the right type of shovel, from the scores of styles made by Wood, if you will give us details of requirements.) Wood shovels have correct weight and perfect balance.

3 Grip

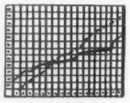
A wide, roomy, comfortable shovel handle means faster shoveling, less resting. (We unhesitatingly recommend the "Moly-D" handle. There is no knuckle squeezing, no pinching, no cold, rough metal to touch the hand. The strain is cross grain to prevent splitting.)

4 Step

The step must have sufficient strength to reduce strain upon the shovel blade or the shoveler's shoes. (Wood's patented turned step actually strengthens the blade and saves wear and tear on shoes.)

5 Uniformity

Watch this. Many shovel manufacturers lack facilities to produce a *uniform* product. Consistency and uniformity of quality is the all-important thing. (Wood's shovels owe their exact uniformity to a secret heat-treating process.)



6 Service Record

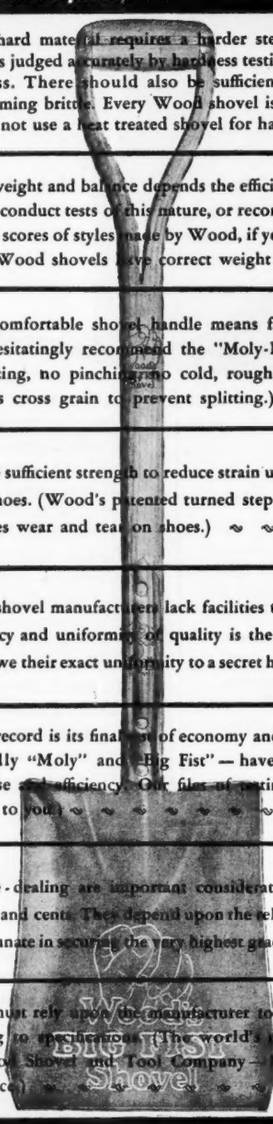
A shovel's service record is its final test of economy and efficiency. (Wood's Shovels — especially "Moly" and "Big Fist" — have established world records for long use and efficiency. Our files of testimonials from reputable users are open to you.)

7 Reliability of Dealer

Service and square-dealing are important considerations that cannot be measured in dollars and cents. They depend upon the reliability of the dealer. (We have been fortunate in securing the very highest grade of representation.)

8 Reputation of Manufacturer

The shovel buyer must rely upon the manufacturer to fulfill his order on time and according to specifications. (The world's most modern shovel factory — The Wood Shovel and Tool Company — has an international reputation for service.)



ANY WAY YOU LOOK AT IT

Up and down, back and forth, any way you look at the 8 vital considerations in shovel buying—Wood's three famous brands lead the field. "Moly"—the world's best shovel, "Big Fist"—champion of the middle price class, and "Piqua"—foremost among low priced shovels.

THE WOOD SHOVEL AND TOOL CO.
Piqua, Ohio

Wood's Shovels

"Moly"—"Big Fist"—"Piqua"

Frick and Lindsay
Pittsburgh, Pa.

Frick-Reid Supply Corporation
Tulsa, Oklahoma

Mideke Supply Company
Oklahoma City, Oklahoma

Alamo Iron Works
San Antonio, Texas

ROCKY MOUNTAIN AREA

(Continued from Page 62)

and probably was the most expensive test ever drilled in the Rocky Mountain area. It was shut down for a long time over title difficulties which finally were adjusted by the passing of a relief act by congress. The Continental Oil Co. interests identified with the Midwest Refining Co. and several other companies were connected with the operation. The Utah Southern Oil Co.'s No. 1 State, SW SE, Section 26-21-23, Grand County, is drilling in the McElmo at 580 feet. The Midwest Refining Co.'s No. 31 Pary, Section 14-39-1w, Kane County, for the account of the Utah Oil Refining Co., is bottomed at 2,340 feet in red shale with the 10¾-inch at 1,987 feet and is underreaming and cleaning out.

IDAHO

The report of a gas blowout in the Idaho-Oregon Petroleum Co.'s No. 2, NW SE, Section 33-9n-5w, in the town of Payette, in the county of that name in Idaho, which was carried in last week's issue, has been confirmed by L. V. Patch, president of the company, who says the gas was encountered at 1,270 feet and that it blew water and sand 130 feet over the top of the casing. It blew for about 15 minutes when the hole bridged and shut off the flow. The bridge occurred about 600 feet off the bottom and the hole filled up with sand. The hole had 1,270 feet of water in it at the time and the pressure was sufficient to lift the entire column. The operation is shut down waiting for a sand pump with which to clean out in an effort to determine the importance of the strike. The well is on the property of the Idaho Canning Co., near a test drilled some time ago that also showed gas. The Grand Teton Oil Co.'s No. 1 Blevins, Section 33-5n-44, Teton County, is drilling at 2,052 feet in dark gray shale, and its No. 1 Bevans, Section 28-5n-44, is drilling at 1,610 feet in an 8-inch hole with gas bubbles and rainbows showing on the water. The Moneida Oil Co.'s No. 1 Rose, Section 32-14-36, Clark County, is shut down for repairs at 1,140 feet. The Gem State Petroleum Co.'s No. 1, Section 2-11-33, Powers County, is shut down on account of bad roads at 3,900 feet.

The Public Utilities Consolidated Corp., which supplies manufactured gas for domestic use in Pocatello, Idaho, where it is proposed to introduce natural gas, jointly with the Norton Oil & Gas Co., has filed a brief with the Idaho Public Utilities Commission protesting against the granting of a permit to John McFadyen and L. B. Denning. Messrs. McFadyen and Denning are officers of the Western Public Service Co. and subsidiaries which operate the natural gas system connecting Wyoming and Colorado gas fields with cities and towns in central Utah. They have an application pending before the Idaho commission for a permit to extend these lines into southern Idaho. The Public Utilities Consolidated and Norton companies contend the Consolidated is in a position to distribute natural gas in Pocatello and suggest that in the event the permit is granted it provide that the new interests act merely as a carrier to the city and the gas be sold through the Consolidated's system. The protest also seeks to have the permit delayed until the possibilities of supplying gas from Idaho fields now under development are determined. This action followed the filing of a similar protest a few weeks ago by the Grand Teton Oil Co.

COLORADO

In Las Animas County the only completion reported for the week was the Helium Co.'s No. 1 Morris-Cowdry, SW cor. NW, Section 35-29s-60, Model Dome, which topped the sand at 1,071 feet and was drilled to 1,152 feet. Its initial production was 1,000,000 feet, being the best of the several wells drilled on that structure. This company operates a helium plant at Thatcher in that county. The American Helium Gas & Oil Co.'s No. 1 Bolling, NW SW, Section 3-29-60, Thatcher Dome, lost its hole at 160 feet and has skidded the rig to start again from the surface.

Bent County

The Continental Oil Co.'s No. 1 Pipe Springs, NE cor. SE, Section 27-27-49, is drilling at 5,547 feet in gray lime. The 5⅞-inch is at 5,514 feet.

Morgan County

The long-heralded test in the Denver Basin in northeastern Colorado, on the Fort Morgan anticline, at last is reaching a definite stage and operations will be under way by the end of this month. The well is to be drilled by the Indian Territory Illuminating Oil Co. and the Osage Development Co., with the Reiter-Foster Oil Co. holding important interests. The tentative location for this test was given recently as the SE cor., Section 9-1n-57, on the Ferguson farm. This has been shifted a little to the south so as to put it on the state lease and the final location is in the C NE NE, Section 16-1n-57, and it will be known as No. 1 State. The footage is 660 feet each way out of the northeast corner. Standard cable tools will be used and it is expected the well will be drilled to at least 7,000 feet to test the Sundance horizon, if necessary. The first objective is the Hygiene sand which is an unknown quantity in that area though it is looked upon as having possibilities. This test will be watched with more than the ordinary interest as a number of the major companies have acquired leases in northeastern and eastern Colorado and will be influenced in their wildcatting program to a considerable extent by the developments in this well.

Yuma County

The Phillips Petroleum Co.'s No. 1 Andrews, NW NW, Section 3-2s-42, on the Rosenkrantz structure, just west of the Kansas line, is drilling at 5,050 feet and still carrying a hole full of water from upper horizons. The 6¼-inch is being carried.

Elbert County

The Belmont Oil Co.'s No. 1 Maher, NE SW, Section 4-6s-59, near Deertrail, is bottomed at 3,730 feet where it has been standing for some time. The small rig with which the hole was drilled to this depth has been moved away as it had reached its capacity. The company is endeavoring to find some one to finance the installation of a standard rig to continue the test. The record made with the small rig is considered a remarkable one as its maximum capacity was considered to be only 2,500 feet. Nevertheless the drillers managed to get the hole down to 3,730 feet and to land the 6⅝-inch on bottom. It carried a hole full of water to prevent caving, but in spite of this weight on the bottom, several shows of oil and gas have been encountered. One of these was at 3,575 feet when there was sufficient oil to coat the water on the bailer. There was also a considerable show of gas in about 50 feet of shale. Some oil men who have watched the well believe there is a possibility a commercial sand may have been cut but its importance could not be determined with the water in the hole. The completion of this test would give valuable information on northeastern Colorado regardless of the final results and it is hoped the company, which is composed of local people, may be able to put it down to the objective horizons.

Arapahoe County

The McDeb Drilling Co.'s No. 1 Fitzsimmons, NE, Section 7-4s-66, near Aurora, is sidetracking casing at 4,500 feet. The total depth is 5,090 feet.

Weld County

The Platte Valley Petroleum Co.'s No. 1 Patterson, SW SW, Section 24-6n-61, Greasewood Dome, is drilling at 5,002 feet and carrying the 4¾-inch.

Huerfano County

The Parker Club, Inc.'s No. 1 Fee, Section 4-28s-68, is coring at 4,095 feet in the black shale between the Dakota and Lakota sands. This is a joint operation with the Kinney-Coastal Oil Co.

Fremont County

The Continental Oil Co.'s No. 2 Harding, NE SW, Section 21-18-70, Orchard Park district north of Canon City, is drilling at 2,065 feet. It has had some shows of gas, but nothing of importance has so far developed. It is being drilled for the account of the Canon Heights Oil Co.

Larimer County

The Continental Oil Co.'s No. 5 Scott, NE NW, Section 6-9n-68, Wellington Dome, is drilling at 3,410 feet. The Standard Oil Co. of Colorado's No. 1 Hertha, NW cor., Section 21-4n-69, Berthoud Dome, is moving in a string of 8¼-inch casing. The total depth is 2,820 feet, where it had considerable gas, but has been tied up with 5 joints of parted 10-inch at the bottom. The intentions are to run the 8¼-inch and carry it on down to the top of the Muddy.

Moffat County

Thomas McLaughlin and others' No. 1 Williams, NW SW, Section 2-3n-92, Iles district, expects to land the 4¾-inch on bottom at 4,420 feet within the next day or two when drilling into the Sundance will be resumed. It is bottomed in shale just above that horizon. The Midwest Refining Co.'s No. 19-SD Parkinson, SW NE, Section 22-4n-92, Iles Dome, is bottomed at 2,644 feet and underreaming and cleaning out. The 10¾-inch is at 2,626 feet. The same company's No. 24 Hannewalt, SE SE, Section 4-6n-92, Bell Rock, is drilling at 1,700 feet in shale. The Mountain Fuel Supply Co.'s No. 1 Lasher, NE NE, Section 25-12n-101, Bartram Dome, is drilling at 1,850 feet, and the Texas Production Co.'s No. 1 Berlin, SW NE, Section 19-12-100, is lubricating to free the 6¼-inch which is frozen at 2,315 feet.

Rio Blanco County

The Texas Production Co.'s No. 1 Potter, NE SW, Section 30-2n-96, White River, is coring at 5,873 feet.

WYOMING

The deep test to the granite being drilled in Salt Creek by the Midwest Refining Co. in its No. 29-DT, NW, Section 35-40-79, on Wyoming Associated lease, continues to increase its output with deeper drilling. At last reports it was bottomed at 3,855 feet and was flowing between 1,400 and 1,500 bbls. per day. At this depth it was bottomed 75 feet in the Tensleep and 65 feet in the pay. The Tensleep is estimated to be 270 feet thick and below it remaining to be tested are the Amsden, Madison and Deadwood. The Midwest Oil Co.'s No. 19-SD-3, NE, Section 35-40-79, was completed in the third Sundance at 2,937 feet and made 466 bbls. initial. The Wyoming Associated's No. 13-SD-2, was completed in the second Sundance at 2,835 feet and made 398 bbls. the first 24 hours. This last named well flowed 471 bbls. the first 15 hours, being the largest well completed in the second bench of the Sundance.

Mahoney Dome

The Tensleep test of the Producers & Refiners Corp. and the Midwest Refining Co. on the Mahoney Dome in Carbon County, in their No. 2, SE NW, Section 34-26-88, also is showing up better with increased depth. At 4,683 feet, 83 feet below the top of the formation, the oil was standing 2,700 feet in the hole, compared with 800 feet at 4,645 feet. The oil is a much better grade than found in the same formation in Salt Creek and more recent tests showed a gravity of 34 degrees. First tests were even better. The oil is reported to have a mixed base with the paraffin predominating. This is the first hole to go below the Sundance on the Mahoney Dome and its importance cannot be too greatly overestimated. The area has numerous structures extending into Sweetwater and Freemont Counties which have never been tested to the Tensleep though some are big producers in the Dakota series and others are oil fields in those horizons. The Producers & Refiners has been exploring the deeper horizons for the past two years, but little information has come out as to the results. It will be recalled that in 1927 its No. 19, NW SE, Section 25-26-87, on the Ferris Dome, to the east of Mahoney Dome, had a production of 250 bbls. in the Sundance at 2,628-70 feet and then was drilled on down. At 4,525 feet it was reported 2 feet in the Tensleep and flowing 25 bbls. an hour of light green oil testing 37.5 gravity. Other reports were that it flowed better than 700 bbls. the first day. Contrary reports were that it was making 200 bbls. of fluid of which 50 per cent was water. It was carried on down to 4,600 feet where it ran into sulphur water and was plugged back. It was supposed to have been completed as a 125-bbl. well. The following year the company went three-fourths of a mile to the northwest and drilled its No. 24, NE SW NW, Section 26-26-87. It was in the red beds at 3,703 feet and the 8¼-inch was cemented at 3,725 feet. It was drilled to 4,623 feet and had water at 4,550 feet. It was plugged back and shut down for orders. The results were not disclosed.

Park County

The Ohio Oil Co. is drilling in what looks like will be a good producer in its No. 1 Burlington, SW SE SW, Section 21-53-101, on the Shoshone Dome, near Cody, and north of the Oregon Basin Pool. It topped the Embar at 4,312 feet and is drilling at 4,500 feet with 2,000 feet of oil in the hole and a little gas. In 1928, this company put down the discovery well in its No. 1 Pulley, NW NW, Section 27-53-101. It topped the Embar at approximately 4,752 feet where the 4¾-inch was set. It had considerable oil standing in the hole, but ran into hot sulphur water at 4,780 feet and was completed as a 45-bbl. well after plugging back. The company then located its No. 1 Burlington three-fourths of a mile to the west and one-eighth of a mile to the north of the discovery and began drilling last June. The 8⅝-inch was cemented at 4,312 feet, so the hole is sufficiently large to make a test of the Tensleep, where the big production is expected. The oil in the first well was black, but reported to be a little better grade than that found at Oregon Basin.

In the Oregon Basin Field in Park County, the Lenco Petroleum Co. has commenced shipping oil to the new Laurel Oil & Refining Co. at Laurel, Mont., which will begin operations early in April. The new refinery has been connected with the gas line of the Gallatin Natural Gas Co., a subsidiary of the Ohio Oil Co., and will use natural gas for fuel. The Wyoming Western Oil Co.'s No. 3 Hough, SE cor., Section 18-51-100, is drilling at 4,695 feet and trying to test the Madison lime. It is through the Embar and Tensleep, both of which carried water. The well is down structure and should oil be found in the Madison at this location it would prove Oregon Basin to be an enormous field in area in that formation. The Y-Tex Oil Co.'s No. 1, SE SW, Section 16-51-100, is drilling at 720 feet. The Oneida Oil Co.'s No. 1 Beck, SW cor., Section 28-52-100, is drilling out cement. The 10-inch was cemented at 2,250 feet. The Cody Petroleum Co.'s No. 2 Klindt, NE NE, Section 7-51-100, one of the earlier producers in the Embar, has been recompleted as a fair well after plugging back to the Embar from a total depth of 4,188 feet. This company's No. 1-B Klindt, NE SW, Section 6-51-100, is drilling at 2,275 feet. Charles E. Orchard's No. 1 Owens, SE cor., Section 29-52-100, is setting tanks and preparing to drill into the pay. It is bottomed at 3,260 feet. On the Frannie Dome, the Midwest Refining Co.'s No. 31 Rosenberg, SW cor. NE, Section 25-58-98, is drilling in a water sand, probably the Sundance, at 1,630 feet.

Hot Springs County

The Ohio Oil Co.'s No. 1 Smith, SE NE, Section 9-46-99, Walker Dome, is drilling at 3,148 feet.

Big Horn County

The Ohio Oil Co.'s No. 1 Union Gas, NE cor., Section 22-56-97, is drilling at 4,620 feet.

Fremont County

The Kinney-Coastal Oil Co.'s No. 1 Dykeman, SE SW, Section 22-3n-1w, the deep test on the Pilot Butte Dome, which gauged 63,000,000 feet of gas in the Muddy, is bottomed at 3,440 feet where it cemented the 8¼-inch with 140 sacks in an effort to shut off the gas. The cement failed to hold and the gas broke through. It is probable that the 6¼-inch will have to be run. There are several deeper horizons, including the Dakota, Lakota, Morrison and Sundance which the company hopes to test for oil in this

well. The Texas Production Co.'s No. 1 State, SW SW, Section 36-34-95, Alkali Butte, is drilling at 2,967 feet.

Sweetwater County

The Prairie Oil & Gas Co.'s No. 75-A, Section 11-26-90, Little Lost Soldier, is drilling with rotary at 2,226 feet. Last year this company's No. 74-A, on the same lease, the fifth well to reach the Sundance, was completed at 1,926 feet and flowed 1,100 bbls. a day initial. This structure is on the same line of folding as the Mahoney Dome in Carbon County, where the Producers & Refiners has found oil in the Tensleep below the Sundance. The Tensleep at Little Lost Soldier is much shallower. The Mountain Fuel Supply Co.'s No. 1 Union Pacific, Section 11-17-104, South Baxter Basin, is fishing at a total depth of 2,563 feet, and its No. 1 Sullivan, SW SW, Section 10-16-104, is straightening hole at 3,430 feet. This well cased off considerable gas in the Dakota to go to the Sundance. The Hidden Treasure Oil Co.'s No. 1, SW cor., Section 32-21-103, North Baxter Basin, is drilling at 2,680 feet near the top of the Frontier.

Uinta County

The California Co.'s No. 1 Union Pacific, NE NW, Section 7-17-116, Muddy Creek, is bottomed at 4,635 feet and drilling out cement.

MONTANA

The Cosmos Petroleum Co. found a new producer in the Buckley or Border Field, located across the international boundary in northern Montana. The new well is located in Section 2-37-4 and it is considered good for 100 bbls. The pay was found in the Vanalta sand.

The Vantalta No. 2, on the Canadian side of the line, is also a completion and making around 50 bbls. with the swab. The Monalta well on the American side of the line is expected to reach the Vanalta sand in a day or two and may be expected to report a completion the coming week.

In the Sunburst Field, the Levnick No. 2, in the central part of the field, reached the Ellis sand and was shot twice. The well looks like a 10-bbl. pumper.

In the deep test being drilled by the Texas-Pacific Oil Co., the bit opened a sand at 3,058 feet that contained some gas and then seemed to blow out.

In the Pondera Field, the Warren Oil Co.'s No. 1, in the northwest part of the field, Section 8-27-4, looks like one of the best completions of the field to date. This well started off at 200 bbls. and appears to be increasing its production somewhat.

The Dry Creek Dome well being drilled by the Ohio Oil Co. in Carbon County, southern Montana, has tested the string of casing set at 4,200 feet and the cement job is holding. The well will drill into the gas sand that was showing about 2,000,000 feet when the casing was run.

Rocky Mountain Production

Daily average pipe line runs from the various pools in the Rocky Mountain area for the week ending March 15:

WYOMING

Salt Creek	30,720
Frannie	400
Big Muddy	2,100
Oregon Basin	4,320
Dutton	....
Elk Basin	730
Ferris	40
Grass Creek	2,130
Hamilton	720
LaBarge	2,280
Lance Creek	170
Lost Soldier	3,280
Osage	670
Poison Spider	140
Rock River	2,320
Rex Lake	90
Lander	410
Simpson Ridge	....
Teapot Dome	20
Greybull	....
Total	50,540

MONTANA

Cat Creek	1,170
Kevin-Sunburst	4,940
Pondera	1,720
Lake Basin	70
Total	7,900

COLORADO

Moffat	1,086
Fort Collins	1,555
Florence	611
Iles	997
Tow Creek	357
Boulder	25
Rangley	100
Total	4,731

NEW MEXICO

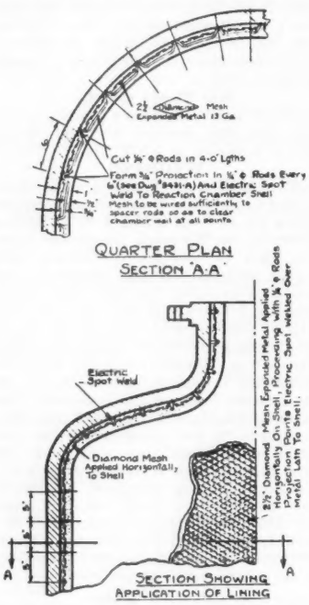
Artesia	816
Cap Rock (Maljamar)	1,127
Hogback	460
Rattlesnake	537
Table Mesa	112
Jal	1,420
Hobbs High	20
Getty	....
Lea	6,099
Miscellaneous	1,071
Total	11,662
Grand total	74,833

USE NONMETALLIC PROTECTIVE LININGS

(Continued from Page 41)

mortar box. Finally the required amount of water is added (approximately the amount shown in foregoing table) to obtain the desired consistency. Mixing in 100-pound batches has been found to be convenient. This amount is sufficient to fill three standard size pails which are used as needed on the working platform in the chamber.

Each 100-pound batch should cover approximately 100 square feet, one-eighth-inch thick. The thickness of the coating should be not less than one-


2½ Diamond Mesh Expanded Metal 13 Ga.
Cut ⅜" ø Rods in 4-0" Lgths
Form ⅜" Projection in ⅜" ø Rods Every 6" (See Dwg. "B&B-A) And Electric Spot Weld To Reaction Chamber Shell
Mesh to be wired sufficiently to spacer rods so as to clear chamber wall at all points
QUARTER PLAN
SECTION "A-A"
Electric Spot Weld
Diamond Mesh Applied Horizontally To Shell
Mesh Expanded Metal Applied Horizontally On Shell Projecting With ⅜" ø Rods (Projection Points Electric Spot Welded Over Metal Lath To Shell.
SECTION SHOWING APPLICATION OF LINING

eighth inch and preferably not more than one-fourth inch. From one-eighth inch to three-sixteenths inch is ideal. While the first batch is being sprayed, another similar batch is freshly prepared, thus producing a continuous operation.

A brushing solution is prepared as a finishing coat for the lining. The table above shows the necessary amounts of ingredients for one batch mixture, which will usually serve three batches or more of the lining mixture.

Spraying and Brushing

Before spraying, the openings of the residues and liquid level lines are plugged. The spraying is accomplished by means of a cement gun, with about 80 pounds of air pressure in the line. If the mixture in the pail is too thick for spraying, only enough water is added to bring it to the desired consistency.

The dome of the chamber is sprayed first. During the spraying of the dome the man with the mixture stands back close to the wall of the chamber, holding the pail about 2 feet from the top, After each pail is sprayed on, both men in the chamber brush the sprayed section with the brushing solution, checking the thickness with the finger nail or with a knife.

The brush for applying the brushing solution is only dampened or slightly wet with the solution, in order to avoid thinning the already applied coating. The time required to spray on one pailful permits sufficient setting of the applied coating and prevents, in a measure, dilution when applying the brushing solution. When the mixture is sprayed on thick, it is brushed down to the desired thickness or about one-eighth inch and when sprayed on too thin it is brushed over with a fresh mixture and then afterward brushed with the brushing solution.

The spray-gun operator positions himself approximately 4 to 5 feet from the wall he is spraying and each section of the wall after spraying is checked for thickness and brushed with the brushing solution. After spraying the gun should be placed in a pail of water set on the platform and blown out, care being taken that this water is not discharged on the wall of the chamber.

If the coating dries too fast for easy brushing, somewhat more brushing solution is used on the brush and harder strokes applied, but generally speaking the amount of brushing solution should be reduced to a minimum. In spraying and brushing, special care should be taken to cover the area around and under the hooks. Before lowering the working platform for spraying the next section, the already sprayed area is carefully examined for open spots or irregularities and the thickness of the coating checked as described. To complete the lining the neck of the chamber is troweled and brushed.

Curing Procedure

The curing equipment consists of a gas burner with an air jet and short sheet metal pipe for combustion space.

Before curing, the lining is "air-dried for at least 12 to 18 hours and an extra day of air drying has been found to be very beneficial. Precaution should be taken to keep rain from the coating during the period of drying. During cold weather a closed steam coil should be installed in the bottom of the chamber and the temperature maintained at between 60 to 70° F. so that the lining does not freeze during air drying. It is also important that the temperature be kept steady during the air-drying period to prevent the lining from cracking. After the air-drying period, the temperature of the chamber is gradually raised to 180° F. and the following schedule maintained thereafter.

Temperature Schedule for Curing

Hours	Critical range °F.	Hours	Critical range °F.
1	180	11	260
1½	185	12	280
2	190	13	290
2½	195	14	330
3	200	15	360
3½	202	16	400
4	205	17	450
4½	207	18	500
5	210	19	550
5½	212	20	600
6	215	21	700
6½	217	22	800
7	220	23	900
8	225	23½	900
9	235	26	950
10	245	26½	(*)

*Cut fires.

With the proper draft, which is regulated by the steel plate at the top manhole, the difference in temperature between the thermocouples can be practically eliminated or made very small. The temperature increase per hour while any portion of the lining is within the 200° to 225° range (critical range) should be maintained not to exceed 5° the critical range the water comes off at the most rapid rate and it is very important that the slow rate outlined in the temperature schedule be followed closely so as to avoid overheating and consequent blistering of the lining. It is further advisable, if there is a difference in temperature between thermocouples, that the thermocouple registering the highest temperature be used until it has reached 225°, and then the slow rate continued using the thermocouple registering the lowest temperature until the 225° temperature on that thermocouple also is reached. This should be done to avoid overheating any portion of the lining during the critical range. It is further advisable to cure at a slow rate, as this gives a smoother surface.

Tests are being planned at the present time to cure the lining by means of heating ovens. The plan is to insert the whole chamber in a heating oven and follow through the regular schedule. This plan, of course, is feasible for centralized manufacture only. Curing in this manner will permit exact temperature control and eliminate excess carbon dioxide which has a deleterious effect on the lining while curing is taking place.

In most of the installations to date the air-drying period covered only 12 to 18 hours. The longer this period is extended the better the final results. A preliminary drying from 170° to 180° F. instead of at atmospheric temperatures permits passing more easily through the critical temperature, 190° to 225° F., without blistering. The rate above 250° F. is of less importance. A final curing temperature up to 950° F. is recommended instead of 900° F.

It is important that no oil be permitted to settle on the sandblasted walls such as might occur when the chamber being lined is adjacent to another unit in operation or down for clean-out. Care must also be taken that the workmen applying the lining do not rub against the walls with oily clothing.

Improvements in mixing may be brought about by the use of a mechanical mixer.

In a recent installation very good results were obtained by heating the top of the chamber indirectly through the flue to effect partial curing and then heating in the usual manner. Apparently this eliminated the destructive effect of carbon dioxide in the flue gas upon the partially cured lining.

Patching

If blisters are formed which are easily cracked, or if there are defective areas after curing, the lining should be knocked off and the metal cleaned thoroughly with a wire brush. The mixture is applied to the patches by troweling a heavy standard mixture, and cured. If the defective area is large, repatching and curing should be done in the same manner as for the original installation. The method of curing areas that have been patched is the same as used for curing the entire chamber. The same schedule for increasing the temperature should be followed.

From the best available information relining of faulty areas must be done about every five months, the area to be replaced varying from 10 per cent upward. According to some reports there is still a protecting film of lining even in the area that is replaced. In all cases where the lining remained intact no corrosion occurred.

In a refinery where the lining has been used regularly since July, 1928, the practice has been to sandblast all bare spots after four or five months, reline and recure. At this time about 90 per cent of the lining has been found intact. The superintendent states that "it is a rare occasion that upon inspection we find the nonmetallic lining completely eroded away so that the bare metal is exposed" and that this same condition applies to blisters, from which he draws the conclusion "that regardless of blisters there is practically at all times 100 per cent lining except that some of it is not as thick as it should be and would erode away faster than the original thickness." Portions of linings in reaction chambers at this refinery have been intact for the past year and a half. The lining is removed over the seams of the chamber twice a year for inspection and replacement is made immediately thereafter.

The superintendent in question makes the following further statement:

"I will go on record as saying that this nonmetallic lining has probably given our dephlegmators many years of life and has saved us considerable money. We have had no corrosion within our chambers since placing this nonmetallic lining and in as much as we have been operating these two plants for four years and our pressure has only been reduced 10 pounds in that time and that coming in the first year's operation, you can readily see that this speaks very well for the nonmetallic lining."

Naturally the opinions of those who

were not so successful with the lining would be quite the reverse of the above.

Causes of Failure in Nonmetallic Linings With Silicate Binder

Improper grading and mixing of materials, delay in applying the mixture, oily or unclean surfaces, too rapid heating through the critical temperature range (190-225° F.), uneven heating of chamber during curing, for example the lower part to 900° F. and the upper part to 700° F., have all been contributing causes in the failures reported.

Indirect heating, especially for the preliminary curing, is preferable to all direct heating. Excess air is desirable with the latter as too much carbon dioxide in the flue gas reacts with the binder.

From a general knowledge of the reactions of sodium silicate and from the study to date, it is concluded that the sodium silicate binder undergoes no chemical change during curing, but is simply dehydrated. Since dehydrated sodium silicate is slowly dissolved by superheated water, it is likely that some of the lining is removed during steaming and water injection. Actual laboratory tests show that superheated water (100 pounds pressure) disintegrates the lining.

Improvements in Nonmetallic Lining With Silicate Binder

Research is in progress to find the most suitable method of water-proofing the surface of the lining. At present it is directed towards a practical method of forming a protective coating of a heavy metal silicate. High temperature fusion with lead oxide forming a low melting lead glass as a protective film on the surface has given promising results. A study of surface treatment with metal salts and oxides is being continued.

The effect of grain size of the sand on the quality of the coating has been studied and found to be important. A pure, white, sharp silica sand is preferable to ordinary river sand which may contain alteration products of many minerals with a weak grain structure. The silica sand should be free from fines and iron oxide.

A recent study of various mixtures indicates the following to give the best results:

Parts by weight	Material*	Percentage
60	Furnace cement	54.9
30	Sand	27.4
17	Sodium silicate	15.6
2.25	Asbestos	2.1
	Water to proper consistency.	

*Well-known brands of furnace cement, sodium silicate and asbestos were used.

A comparison using the raw materials corresponding to the above formula is shown below:

Parts by weight	Material	Percentage
35	Green clay (through 60 mesh)	33.6
7	Grog (through 60 mesh)	6.7
30	Sand	28.8
30	Sodium silicate	28.8
2.25	Asbestos	2.1
	Water to proper consistency.	

The ball test used for determining the suitability of a coating, consisting in dropping a 5.5-pound weight upon a half ball of the material from a height sufficient to break it showed the mixtures to have the following values:

Mixture—	Ball test
Old formula	38 in.
New formula	60 in.
Dry clay mix	60 in.

Application of Lining to Fractionating Equipment

Many dephlegmators have been lined and have given satisfactory results. Bubble towers have likewise been lined with very satisfactory results. The method of application and curing is the same as for the reaction chambers but the temperature of curing need not be quite so high.

Application of Lining to Treating Equipment

Preliminary tests show the lining to be resistant to concentrations of sulphuric acid varying from 10 to 95 per cent and to concentrations of sodium hydroxide solution varying from 5 to 25 per cent. The indications are that with the acid there is considerable surface reaction, forming silicic acid as there is an actual increase in weight. Evidently the film of silicic acid protects the lining. These tests indicate that the lining is suitable for acid settling and water-wash chambers in continuous treating equipment.

Inquiries have been received regarding the use of the lining in many different industries, for example, those in which chemical reactions of a corrosive nature are carried on; in the manufacture of pulp for paper, in bleaching industries, etc. No. actual data has, as yet, been collected on the results of tests in these various industries.

Storage Tanks

The protection of storage tanks which is of great importance in the petroleum industry is accomplished at the present time mainly by the use of special paints. It is believed that in special cases nonmetallic linings will be useful, especially since high temperature curing is not necessary.

Smoke Stacks

Satisfactory nonmetallic coating materials have been made for smoke stacks, consisting of mixtures of metallic oxides, minerals and sodium silicate, conforming generally to the principles involved in the preparation of nonmetallic lining of stills and reaction vessels. One such paint developed in our laboratories giving good results in actual practice has the following composition:

1 part of feldspar (200 mesh).
1½ parts of manganese dioxide (85% MnO_2 black grade).
2 parts of 44° Be. sodium silicate solution.

The lining has a wide variety of applications to all conditions where metal surfaces require protection against corrosion.

Ganister Linings[2]

Several methods have been employed for applying ganister lining to reaction chambers. They differ chiefly in the method of the application, reinforcing and the reinforcing material used in the lining. Some of the first linings installed employed an expanded metal reinforcing mesh, spaced a short distance from the inner surface of the chamber by metal spacer rods or dowels welded to the chamber and to the expanded metal. Later this method of fastening the expanded metal to the chamber was simplified by breaking one end of a leg of the mesh at intervals, bending it back and tack-welding it to the chamber. This method of fastening the wire did not prove very satisfactory as usually in heating the heavy wall of the chamber to the welding temperature the light gauge leg of the metal mesh is burned. In some later installations the expanded metal was dispensed with entirely except in the dome of the chamber and metal reinforcing bars welded to the chamber served as the only reinforcing material on the side walls. This method was tried with the hope of eliminating spalling of the lining which had been a more or less common occurrence in earlier installations but was unsuccessful as the lining came off completely. It was found that where spalling occurred, the ganister lining fell away and exposed the reinforcing mesh, the lining under the reinforcing remaining in place and apparently remaining intact. This spalling is attributed to a difference in expansion between the reinforcing metal and the lining. In some of the cases examined a large part of the lining remaining next to the wall of the chamber is only held in place by the reinforcing mesh and coke deposited in the cracks of the lining.

A more recent development of reinforcing the ganister lining which has been installed, but so far has not been tested, employs poultry netting instead of expanded metal. With a few exceptions, the earlier method of applying the ganister lining with expanded metal reinforcing were much the same as the method now being tried in which poultry netting is employed as reinforcing. A description of the method of application follows:

Sandblasting

The interior of the chamber to be lined is thoroughly cleaned and sandblasted to remove all coke, oil, rust-scale or other foreign material. The removal of all oily substances from the surface of the metal to be coated with lining is imperative where ganister lining is to be used. If the chamber has tar or coke on the walls, it must be thoroughly dried out before sandblasting. The temperature of the chamber is quickly raised to about 800° F. and it is held at this temperature until the tar or coke is completely dried or loosened. A good draft is maintained through the chamber during the early part of the drying operation to avoid the accumulation of explosive gases. All lines leading into the chamber are disconnected and the openings closed before lighting the burner. This prevents oil vapors or gas from other parts of the process from entering the chamber and becoming ignited or forming dangerous explosive mixtures. This precaution also prevents burning of any oil or coke deposited in the lines leading to the chamber.

Any efficient sandblasting equipment is suitable. The type N. O. cement gun, which is used for applying the ganister, is also satisfactory for sandblasting. Several drum type sandblasting machines have also been used with satisfactory results. In all cases a water trap should be used in the line supplying air to the sandblasting equipment and the sand used should be thoroughly dry for efficient work.

A sharp, abrasive sand such as used in monument work is recommended for sandblasting. The white silica sand used in foundries has also been found satisfactory.

The men in the chamber during the sandblasting operation are equipped with respirator and close-fitting goggles and these may also be used in applying a ganister lining, if desired.

Replacement of Cable Hooks

The reaction chambers of cracking plants are ordinarily equipped with hooks welded to the sides of the chamber to which the cable used in breaking the coke deposits after the operation is fastened. If the holes in these loops or hooks are not far enough removed from the wall of the chamber to protrude through the ganister lining, they must be replaced. The new lugs are welded to the wall of the chamber by an electric arc in the same manner as the original lugs were installed.

Reinforcing (Diamond Mesh Expanded Metal)

For the reaction chamber a 2½-inch diamond mesh expanded metal of No. 13 gauge is used for reinforcing. This is fitted to the walls so that there is no overlapping or bare areas. The expanded metal is cut in segments and fitted to the heads. The reinforcing is only tack welded to the chamber enough to hold the reinforcing while the horizontal spacer bars are welded in place. Care should be taken so that welding is not too heavy as mesh must be detached later to wire it to the quarter-inch spacer bars.

The spacer bars are made of quarter-inch round reinforcing rods bent. They are placed horizontally around the chamber spaced about 5 inches apart and electric welded to the chamber at the points where the projections touch the wall. After the horizontal bars have been welded in place the diamond mesh expanded metal is broken loose from the chamber and securely wired to the horizontal spacer rods with No. 18 gauge wire. When the wiring is completed the expanded metal should be spaced about one-half inch from the chamber wall at all points.

Reinforcing (Poultry Netting)

For reinforcing the ganister lining 1½-inch mesh No. 18 gauge galvanized poultry netting, placed three-fourths of an inch from the chamber wall, is used.

To hold the netting in place No. 8 gauge soft iron wire spacers about 1-inch long are welded at one end to the wall of the chamber and they are spaced on about 12-inch centers, vertically and horizontally, on the side walls of the chamber and on about 6-inch centers on the top head of the chamber.

Netting 48 inches wide is recommended for easily handling inside the chamber. The netting is placed over the spacers welded to the chamber and the protruding ends of the spacers are bent around the wire mesh, leaving the latter spaced about three-fourths of an inch from the chamber wall.

At the bottom of that portion of the chamber to be lined, a 1½ by 1½ by five-sixteenths-inch angler is electrically welded around the inner circumference of the chamber. The angler is placed with one leg projecting toward the center of the chamber and is made up in segments which will pass through the chamber manhole.

The Composition of the Mixture

The mixture for the lining is composed of three parts of ganister or crushed firebrick screened to pass a No. 4 mesh screen and one part of portland cement.

The material required for lining one reaction chamber 10 feet in diameter by 30 feet high with a ganister lining 2 inches thick using poultry netting is as follows:

100 pounds No. 8 A.S.&W. gauge soft iron wire.
2 150-foot rolls No. 18 gauge 1½-inch mesh poultry netting 4 feet wide.
9 tons ganister or crushed firebrick screened through a No. 4 mesh screen.
65 sacks portland cement.
1 1¼ by 1¼ by five-sixteenths-inch steel angle bent to 10-foot O. D. with projecting leg inside, cut into segments which will pass through chamber manhole.

Various other mixtures of ganister and crushed firebrick have been used. One of these calls for:

1 part of ganister passed through a 5-mesh screen and retained on a 60-mesh screen.
2 parts of ganister passed through a 60-mesh screen.
1 part of portland cement.

Another mix calls for:

1 part of ganister passed through a 3-mesh screen and retained on a 4-mesh screen.
2 parts of ganister passed through a 4-mesh screen.
1 part of portland cement.

The best mix for all conditions has not been definitely established but it is believed that a larger proportion of gan-

[2]The ganister lining originated at the Shell Petroleum Corp., Wood River, Ill., and its development is being carried forward by both the Shell group and the Universal Oil Products Co.

CRACKING PLANT REACTION CHAMBERS LINED WITH GANISTER LINING*
(Experience record)

Installation No.	Method	Remarks—
42	A	In excellent condition after 7 months.
43	A	In excellent condition after 3 months.
44	B	In fair condition after 15 months.
45	B	In fair to good condition after 15 months.
46	B	In good condition after 13 months.
47	B	In good condition after 14 months.
48	B	In poor condition after 14 months; to be renewed.
49	B	Repaired 11 months after installation.
50	A	In excellent condition after 3 months.
51	..	Repaired 9 months after installation.
52	A	In excellent condition after 4 months.
53	B	Very soft and removed after 11 months.
54	A	In excellent condition after 3 months.
55	B	In excellent condition after 14 months.
56	B	In excellent condition after 13 months.
57	B	In good condition after 13 months.
58	..	In poor condition after 13 months; to be removed.

Note—The chambers are 10 by 30 and 10 by 40 and are variously of riveted, hammer-welded and electric-welded construction. Method A—Lining on side walls supported by spacer rods or dowels only. Lining on head as in B. Method B—Lining supported by dowels and diamond mesh expanded metal.

*A third table giving the results obtained in additional installations will be published later.

ister to cement than 3 to 1 is often desirable as the ganister has a greater tendency to drop away when shot against the wall of the chamber than does the cement, leaving in some instances which have been noted a mixture on the wall composed of as much as 60 per cent cement. The presence of the larger aggregate in the ganister is also considered advisable as it helps to strengthen the finished coating.

Application of the Mixture

Before applying the mixture to the chamber the openings to all lines leading from the chamber are plugged with wooden plugs so that the lining will not be sprayed into the lines and plug them.

The ganister and cement are thoroughly mixed in a mortar box placed close to the base of the chamber. The charging hopper of the cement gun is placed close to the mortar box for convenience and the mixed ganister and cement is charged into the machine dry. A hose extending up into the chamber leads the dry material to the nozzle of the gun. The water is mixed with the dry material at this point, the amount of water being regulated by the man handling the nozzle. The water used should be sufficient to leave a glaze on the sprayed surface but not sufficient to make the mixture flow. The water pressure is constantly maintained at about 25 pounds above the air pressure on the gun which latter should also be constant as any variation in the air pressure changes the amount of material fed. It has been found that between 35 and 40 pounds of air is necessary in applying the mixture to the top head of a chamber 40 feet high, that is, at an elevation of about 50 feet from the ground. Constant pressure regulators are installed in the air line to the gun and in the water line to the nozzle to insure a uniform flow of material and a uniform consistency of the material leaving the nozzle.

Care must be exercised in intermittently charging material to the machine to insure unvarying air pressure during this operation and this periodic recharging should be completed as quickly as possible. It is possible to recharge the machine in less than one minute's time when everything is properly handled.

The ganister cement and water mixture is shot onto the walls of the chamber with considerable force, the nozzle being held always at right angles to the wall being coated. The entire thickness of the lining is built upon the wall of the chamber in one coat to insure an unstratified mass of uniform thickness. In some instances this practice has been varied by building the lining up to the reinforcing wire, then scraping off any excess material protruding through the reinforcing, at the same time scraping the wire clean with a trowel and then applying the remainder of the lining. This must be carefully done and the outer portion of the lining must, in all cases, be applied before the under portion has had time to set.

The lining is applied in bands or rings around the entire circumference of the chamber and each ring is finished before passing on to the next ring. The head of the chamber is considered one zone or band. In some instances the lining is started at the bottom of that portion of the chamber to be lined and in others started at the top head of the chamber, the difference being chiefly a matter of preference.

After a ring of the coating has been applied it may be brushed with a large calcimine brush, dampened with water, to smooth the surface. If the coating is sufficiently smooth and even as applied by the gun, the brushing operation may be dispensed with.

The wooden plugs are removed from the openings before the lining has set hard and the sharp edges of the hole are rounded out with a trowel. The holes in the cable-supporting lugs are also cleaned out before the material has hardened.

Curing

After the coating has been applied it is allowed to set for 8 to 10 hours, care being taken at this time to prevent freezing. If the atmospheric temperature is below 45° F., the setting of the mixture is greatly retarded and at about 40° F. practically no setting action takes place. On the other hand, temperatures above 90° F. tend to dry the lining too quickly, causing it to check and crack. The proper temperature may be maintained in the chamber during this setting period by preheating the air entering the bottom of the chamber or by turning steam into the space between the outer wall of the chamber and the insulating jacket which ordinarily surrounds a chamber of this kind. The latter method is probably the easier and better of the two.

After 8 to 10 hours' setting, at the proper temperature, exhaust steam or saturated steam is introduced into the chamber through the bottom manhole opening for a period of 48 hours. During this period the bottom manhole opening is closed except for the admission of steam. The quantity of steam used should be such that only a small amount escapes through the top manhole which is kept covered except for a small portion of its area. This practice insures a humid atmosphere in the chamber during the steaming operation. The steam is then turned off and the chamber allowed to dry for another 48 hours or more. Additional final drying time is recommended whenever possible in order to obtain a lining of maximum strength. The same precautions should be taken during this final hardening or drying period as those exercised during the initial curing stage. The presence of moisture during this period is essential for the strength of the concrete, yet too low a temperature may retard or arrest the hardening action and extreme caution should be exercised to prevent freezing.

After the curing procedure, as outlined above, and the proper connections are made to the chamber, the cracking plant may be charged and fired up. An extended period of say 12 to 13 hours should be taken to bring the plant on the stream for the first time after the lining has been installed. If a low liquid level is to be maintained in the chamber, the level should be drawn down gradually during this 12 to 13-hour period. Regular operating procedure may be used after the first run.

In several installations very good results have been obtained by curing first with steam at 250° F. for 48 hours after the initial air-drying period and subsequently heating with products of combustion from a gas burner for 24 hours at about 280° F. The ganister used passed 12 mesh and the expanded metal mesh was approximately 2 inches instead of 3 inches and was correspondingly lighter in weight. Even spalling appeared to be eliminated under these conditions.

Experience Record of Ganister Linings

In connection with the 33 installations of ganister lining upon which data is available to date, two failed at the start. These were made at the same time and in the same refinery. Of the remainder in a great many cases spalling or splitting off to the re-enforcing metal occurred but the lining still gave protection. It is estimated from the above record that it is necessary to replace the lining every 8 or 10 months, but cases are available where the lining was in good condition after 15 months.

In one typical case the ganister linings are renewed every eight months to one year. The linings are not renewed until about 50 per cent on the roof has spalled or split away and 33 per cent on the walls. The spalled ganister does not always fall away but often remains hanging in place. Where sections of the lining have been broken away from the chamber itself but are kept in position by the expanded metal lath the accumulation of coke acting as a binder causes the loose material to be knitted together again. Usually the lining on the roof of the chamber spalls away first.

No definite time has been determined for the beginning of spalling. Sometimes the roof lining will start spalling after several runs and at other times after several months. No patching of old linings is attempted.

Inspection of the chamber by drilling showed a negligible loss due to corrosion after one year. Previous experience with unlined hammer-welded chambers in this refinery showed a reduction of 50 per cent in capacity over a two-year period due to corrosion, while the replacement lined chambers permitted maintaining the original capacity and showed no appreciable corrosion after two years.

One case is recorded of a chamber lining lasting in good condition after 15 months, after which it was removed to inspect the chamber. With low level operation it is expected that the new lining will last even longer.

Causes of Failure in Ganister Linings

The greatest defect in the ganister lining up to the present time has been the spalling or splitting away of the ganister along the plane of the diamond mesh expanded metal. Apparently the cause of this is the difference in the coefficient of expansion between the metal lath and the ganister, which causes strains and splitting along the plane of the metal mesh, since this is the weakest plane and because the strain originates here. Difference in temperature in the ganister itself may also account for spalling or splitting. Although there have been no extensive observations of the condition of the liner between the metal mesh and the inner wall of the vessel, in many cases the lining has been found to be loosened and is only prevented from falling by the mesh itself. In some cases the fragments are cemented both to the inner wall of the vessel and the surrounding ganister by coke which deposits and fills in the cracks. Even under these conditions apparently the liner is serving well for protection.

The general practice is not to attempt to repair the lining but rather to remove it completely when the condition is bad and reline.

Among other contributing causes of failure or partial failure is improper mixing and curing; heating too rapidly or permitting freezing; delay in applying the mixture or the re-use of recovered material which has become partially set; building up the layer to the required thickness upon a layer already partially set and causing laminations and weak breakage planes; segregation of ganister from the cement giving a higher cement to ganister ratio on the walls (for example, in the 3-to-1 ratio of ganister to cement samples have been removed which contained approximately 60 per cent of cement); improper grading of the ganister; improper application.

Improvements in Ganister Lining

In order to get around the difficulty of spalling, it has been proposed to make use of a poultry netting instead of the diamond mesh expanded metal. Owing to difficulties encountered to date with poultry netting, it has been suggested that a mesh of somewhat heavier wire be used. It is believed that the metal member serves the purpose only of supporting the lining during application and does not act as a reinforcement. On the contrary, the metal member furnishes, according to present belief, a plane of false cleavage or weak resistance to splitting in direct proportion to the thickness and size of the supporting element.

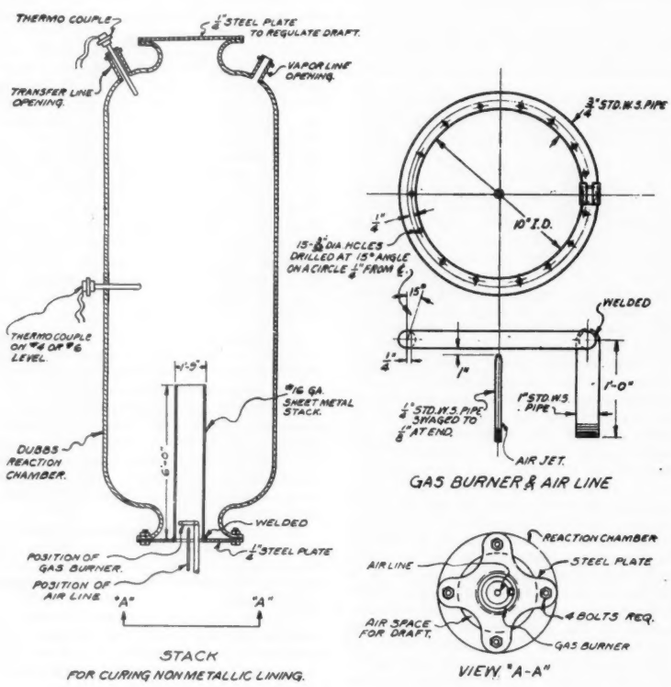
A further study of mixtures and method of application is desirable.

Ganister Dephlegmator Linings

Ganister dephlegmator linings are more difficult to apply than reaction chamber linings due to the limited amount of working space and the necessity of applying the ganister by hand. Because of the small diameter a thinner lining is used. The manner of supporting the ganister lining, its composition and the method of curing are similar to the procedure in lining reaction chambers with this material.

A recent method that has been developed and which is applicable to fractionating equipment generally in lining a 21 by 3½-inch dephlegmator is described as follows: The sides below the pans are more thickly lined than the remainder of the shell and no lining is necessary at the upper 7 or 8 feet of the dephlegmator.

Steel liners are welded in the lower nozzles and extend through the area to be occupied by the ganister lining. Where the thick lining is used quarter-inch steel rods in the form of dowels extending three-fourths of an inch inward are spaced 6 inches apart and welded to the shell. A steel form is then positioned, permitting a 1-inch lining and the concrete ganister mixture poured forming the side and bottom head lining. The balance of the lining is applied on three-fourths of an inch 13-gauge expanded metal which is spot welded using 5-inch spacing to the sides of the dephlegmator shell. A lining three-eighths of an inch thick is then applied with a trowel. The curing is carried out in a similar manner as is used with reaction chamber linings.



The following table is typical of a number of dephlegmator installations:

CRACKING PLANT DEPHLEGMATORS LINED WITH GANISTER LININGS
(Dephlegmators 3½ feet by 21 feet—hammer welded)

1	In excellent condition after 7 months.
2	In excellent condition after 6 months.
3	In good condition after 12 months.
4	In good condition after 12 months.
5	Removed after 10 months.
6	In excellent condition after 4 months.
7	Removed after 8 months.
8	Removed after 5 months (installed in winter).
9	In excellent condition after 3 months.
10	In excellent condition after 4 months.
11	In good condition after 8 months.

Gunnite Linings

A mixture known as Gunnite, consisting of sand and cement, has been used for lining stills, pickling tanks, in steel mills and other equipment. No definite information has been obtained as to the results. The Gunnite consists of approximately 3 cubic feet of clean, sharp sand to one bag of portland cement. It is cured by dampening for at least four days, or if exhaust steam is used for at least two days. The application is about the same as for the ganister lining. The material is held in place during application by a so-called reinforcing mesh attached to the wall by hairpin ties and by frequently spaced small rods.

Refractory Section or Brick Lining

Another method of lining vessels which are subject to corrosion from oil at high temperatures has been proposed. Blocks of refractory material shaped to conform to the curvature of the vessel are built up adjacent to the inner wall of the vessel and may be held securely in place by lugs welded to the inner wall of the vessel and extending through the refractory blocks. These lugs may be pierced by wedges which bear upon the surface of the blocks holding them in position and the wedges in turn may be pinned securely in place.

If only a portion of the chamber is lined, the lining may be supported at the bottom by a steel angle welded around the side wall of the chamber.

A lining of this type presents a continuous refractory surface to the corrosive liquid and vapors. This surface should preferably be glazed. Cementitious material of suitable character may be used to fill the joints between refractory blocks, or, if a fairly close fit can be obtained between the blocks, they may be laid up dry as any small cracks will be closed with a deposit of dry hard coke after the first run or two.

The refractory shapes in and adjacent to the manhole openings may be removed whenever necessary to facilitate the removal of coke from the chamber or these sections may be lined otherwise.

Insulating Value of Nonmetallic Linings

Aside from the purely corrosion protective features of nonmetallic linings, another factor having important possibilities is the insulating effect. While the tests made so far are only of a preliminary nature, the indicated temperature drop through a 2-inch thick ganister lining varies from 125° F. to 150° F. when measured on the inside of the lining and the outside surface of the 2-inch thick metal shell.

As the tendency in the operation of cracking plants is to increase the temperature somewhat in order to improve the antiknock value of the product, a transfer temperature of 950° F. and a temperature inside the chamber of 875° F. would show an ultimate tensile strength of approximately 20,000 pounds per square inch. With a 2-inch ganister lining the temperature of the metal would be approximately 740° F., corresponding to an ultimate tensile strength of approximately 30,000 pounds per square inch, or an increase of 45 per cent over the unlined chamber. The absolute figures may not be exact but the form of the curve preserves the relationship.

While there is an increased safety factor due to the lining, attempts to make use of this insulating effect such as increasing operating pressures and capacity must await the development of a more or less ideal lining which can be depended on to remain intact.

WEST TEXAS FIELDS

(Continued from Page 69)

located Section 357, was dry and abandoned at 5,701 feet.

Mitchell County

Magnolia Petroleum Co.'s No. 1 Snyder was dry and abandoned at 3,270 feet.

Pecos County

Arkansas Fuel Oil Co.'s No. 1-A University was drilled to a total depth of 1,652 feet, topped the pay at 1,635 feet, increased at 1,650-52 feet and had an initial production of 60 bbls. Dixie Oil Co.'s No. 2 Torborg, located Section 539, Arnold & Barrett Survey, was drilled to a total depth of 428 feet, topped the pay at 322 feet and had an initial production of 250 bbls. Humble Oil & Refining Co.'s No. 2 Cunningham, located in Section 48, Block 11, H.&G.N.R.R. Survey, was dry and abandoned at 2,116 feet. Landreth Production Corp.'s No. 5-A University was dry and abandoned at 1,000 feet. Landreth Production Corp.'s No. 1-I University was dry and abandoned at 1,095 feet. McMan Oil & Gas Co.'s No. 11 Smith-C was drilled to a total depth of 1,758 feet, topped the pay at 1,671 feet and had an initial production of 110 bbls. Pecos Crude Oil Purchasing Co.'s No. 4 Pecos Valley Oil Co. was dry and abandoned at 1,650 feet. Shell Petroleum Corp.'s No. 14 Smith had an initial production of 388 bbls. at 1,520-77 feet. Transcontinental Oil Co.'s No. 2 Smith was drilled to a total depth of 1,500 feet, topped the pay at 1,472 feet and had an initial production of 10 bbls. J. L. Kennedy's No. 1 Kennedy was dry and abandoned at 3,132 feet.

PIPE LINE RUNS
(February 25 to March 5)
Runs Through Trunk Lines

Company—	Last period
Atlantic P. L. Co., Port Arthur	27,000
Gulf P. L. Co., to coast via Ranger	43,576
Humble P. L. Co., Comyn, Tex.	42,707
Humble P. L. Co., Ingleside	41,156
Illinois P. L. Co., Del Rio, Tex.	47,715
Magnolia P. L. Co., De Leon, Tex.	20,620
Pasotex P. L. Co., El Paso, Tex.	11,026
Shell P. L. Co., to Healdton, Okla.	30,552
Shell P. L. Co., to Houston, Tex.	23,963
The Texas Company, Houston, Tex.	21,428
Total	309,743
Tank Car Shipment	
Humble O. & R. Co., McCamey	170
Landreth Prod. Corp., Crossett	...
Reagan County Pur. Co., McCamey	...
Thomas & Brann, Grant City	350
Orient Co., McCamey	100
American Pet. Co., Pyote	...
Southern Crude O. P. Co., Wickett	19,933
Total	20,553
Runs to West Texas Refineries	
Bluebonnett Ref. Co., Wickett	2,149
Burford Ref. Co., Pecos	4,522
Col-Tex Ref. Co., Colorado	7,000
Cosden Ref. Co., Big Spring	8,798
Great Western Ref. Co., Big Spring	3,896
Humble Oil & Ref. Co., McCamey	8,964
Mid-Tex Ref. Co., Midland	...
Tonkawa Ref. Co., Pyote	2,489
Big Spring Ref. Co., Big Spring	798
Richardson Ref. Co., Big Spring	4,480
Wickett Ref. Co., Pyote, Tex.	150
Total	43,246

Summary

	Last period	This period
Pipe line runs through trunk lines	294,513	309,743
Tank car shipments	19,479	20,553
Runs to West Texas Refineries	42,383	43,246
Total daily distribution	356,375	373,542
Total daily production	340,417	345,648
Daily average from storage	15,958	27,894

DEATH OF MRS. JOHN H. GALEY

Mrs. John H. Galey, widow of a pioneer oil man in the Kansas and Texas fields, died Wednesday, March 12, in Tulsa at the age of 74 years.

Mr. and Mrs. Galey were married in Pittsburgh, Pa., and came West settling in Kansas where Mr. Galey, a member of the famous oil operating firm of Guffey & Galey, opened commercial production in the Neodesha district. The firm operated extensively in the Gulf Coastal fields in the early years of this century, and disposed of their holdings to the Gulf Oil Corp.

Mrs. Galey is survived by two sons, Harry Galey of Oklahoma City and H. T. (Ted) Galey of Tulsa.

The funeral was held March 14.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 69)

COKE COUNTY

Arkansas Fuel Oil Co.'s No. 1 Stepp, 1,020 ft. NE, 2,340 ft. W of SE cor., Sec. 25, Blk. 1-A, H.&T.C. Sur. ..... Rig on ground.
Cates & Fitzhugh's No. 1 Mimms, 660 ft. N and W of SE cor. Sec. 39, Blk. W, T.&P.R.R. Sur. ..... Location.
Lipan Oil Co.'s No. 1 E. C. Rawlings, Sec. 390, Blk. 1-A, H.&T.C. Sur., elev. 2,750 ft. ..... Shut down 2,892 ft.
Mid-Kansas Oil Co.'s No. 1 W. E. Lackey, 330 ft. N and E of SW cor., Sec. 272, Blk. 1-A, H.&T.C. Sur. ..... Pay 3,755-56 ft.; total depth 4,250 ft.; plugging to abandon.

CONCHO COUNTY

Duffy et al's No. 1 Callan, 1,520 ft. N and 1,120 ft. W of SE cor., Sec. 21, Blk. 10, H.&T.C.R.R. Sur. ..... Spudded and shut down.
Duffey et al's No. 2 Noyes, NW Sec. 19, Blk. 70, H.& T.C.R.R. Sur. ..... Location.
Turner et al's No. 1 Borsig, 150 ft. from S of SE cor., G. Emmig Sur. 130, 6 mi. W of Paint Rock ..... Shut down 735 ft.
Watchorn O. & G. Co. et al's No. 1 Noyes, 1,320 ft. from N and W of Sec. 19, Blk. 70, H.&T.C. Sur. ..... Location.

CRANE COUNTY

Cranfill et al's No. 1 Tubb, 2,310 ft. from N and 330 ft. from E of Sec. 8, Blk. B-27, Public School Land .... Moving in material.
Duffy et al's No. 1 Cowden et al, 660 ft. from S and W lines of Sec. 18, Blk. X, C.C.S.D.&R.G.N.G. Sur. ..... Drlg. 1,435 ft.
Humble Oil & Ref. Co.'s No. 2-C University, 2,310 ft. N and 330 ft. W of SE cor. Sec. 40, Blk. 30, University Land ..... Drlg. 780 ft.
Warner-Quinlan Co.'s No. 8 University, 990 ft. S and 330 ft. W of NE cor. of SW, Sec. 39, Blk. 30, University Land ..... Drlg. 2,510 ft.

CROCKETT COUNTY

California Co.'s No. 2 Shannon, Lease No. 3, 258 ft. N and 2,997 ft E of Sec. 42, T.C.R.R. Sur. ..... Location.
Empire Gas & Fuel Co.'s No. 1 Shannon, 330 ft. N and E of Sec. 42, T.C.R.R. Sur. ..... Top salt 1,130 ft.; top lime 2,468 ft.; top pay 2,615 ft.; total depth 2,660 ft.; 1 bbl. oil per hour; shot 50 qts. from 2,615-30 ft.; to put on pump.
Lewis & Daniels' No. 1 Pecos River bed, 19 yds. S and 37° E of NW cor., Sec. 33, Blk. 1, I.&G.N. Sur. ..... Shut down 1,407 ft.
Magnolia Pet. Co.'s No. 1 Hoover, 2,310 ft. from N and 330 ft. from E of Sec. 12, Blk. 1, G.C.&S.F.R.R. Sur... Top salt 660 ft.; running 10-in. casing 2,040 ft.; show gas 1,858-1,950 ft.
Young et al's No. 2 Shannon, 1,873 ft. from E line and and 977 ft. from S line, Sec. 42, Blk. BB ..... Location.

CULBERSON COUNTY

Grisham & Hunter Oil Corp.'s No. 1 Seay, 330 ft. from S and W of Sec. 16, Blk. 59, Twp. 7, T.&P.R.R. Sur. ... Rigging up; total depth 2,995 ft.
Grisham & Hunter Corp.'s No. 1 Garren, 2,310 ft. from S and 330 ft. from E of Sec. 18, Blk. 89, P.S.L. Sur. .... Moving in machinery.
Hickey & Stiver's No. 1 C. O. Finley, 600 ft. N and 1,980 ft. W, Sec. 20, Blk. 82 ..... Small show oil 1,331 ft.; drlg. 2,832 ft.
Kornrumpf et al's No. 1 Garren, 330 ft. S and W Sec. 15, Blk. 79, Public School Land ..... Spudded and shut down.
West Coast Oil & Exploration Co.'s No. 1 McGregor, C NW, Sec. 14, Blk. 81 ..... Slight show oil 740 ft.; shut down 875 ft.; may abandon.
Scott & Dittman's No. 1 Miller, 1,160 ft. N and 2,480 ft. E, Sec. 1, Blk. 97, Public School Land ..... Rainbow 1,056 ft.; 300 ft. sulphur water 1,725 ft.; oil show 2,528 ft.; hole full sulphur water; running 6-in. casing; shut down 3,508 ft.

ECTOR COUNTY

Cosden Oil Co.'s No. 1 Kloh & Rumsey, 990 ft. S and 330 ft. E NW cor. Sec. 17, Blk. 44, Twp. 3s, T.&P. Sur. ..... Drlg. 848 ft., red rock.
Cosden Oil Co.'s No. 2 University-B, 2,310 ft. S and 440 ft. W of NE cor. of Sec. 2, Blk. 35, University Land ..... Jarring on tools 830 ft.
C. P. Davis et al's No. 1 Hendricks, C SW Sec. 46, Blk. 42, Twp. 2s, T.&P.R.R. Sur. ..... Drlg. 1,000 ft.
Gibson & Johnson's No. 1 Scharbauer, 990 ft. from N and E of Sec. 4, Blk. B-15, Public School Land ..... Spudding 160 ft.
Gulf Prod. Co.'s No. 1 Kloh-G, 330 ft. N and 440 ft. E of SW cor. Sec. 5, Blk. 44, Twp. 3s, T.&P. Sur. ..... Rig.
Gulf Prod. Co.'s No. 1 State, 330 ft. N and 440 ft. W of SE cor. of S 160 ac. of Sec. 1, Blk. 35, University Land ..... Drlg. 1,985 ft., salt and anhydrite.
Gulf Prod. Co.'s No. 1 State-A, 330 ft. S, 440 ft. W of NE cor. of N half of S half Sec. 2, Blk. 35, University Land ..... Drlg. 1,305 ft.
Humble Oil & Ref. Co.'s No. 2 Kloh-Rumsey-D, 2,310 ft. S and 440 ft. E of NW cor. of Sec. 7, Blk. 44, Twp. 3s, T.&P. Sur. ..... Drlg. 2,760 ft.
Humble et al's No. 3 Kloh-D, 2,325 ft. N and 440 ft. E of SW cor. Sec. 7, Blk. 44, Twp. 3s ..... Drlg. 2,140 ft.; top salt 1,055 ft.
Humble et al's No. 4 Kloh-D, 322 ft. N and 440 ft. E of SW cor. Sec. 7, Blk. 44, Twp. 3s ..... Drlg. 1,450 ft.; top salt 1,060 ft.
Humble O. & R. Co.'s No. 7-D Kloh et al, 330 ft. from N and 440 ft. from W of Sec. 7, Twp. 3s, Blk. 44, T.&P. Sur. ..... Moving in tools.
Humble Oil & Ref. Co.'s No. 2 York, 990 ft. S and 440 ft. E of NW cor. of Sec. 16, Blk. 44, Twp. 3s, T.&P. Sur. ..... Top lime 3,130 ft.; drlg. 3,140 ft.
Humble Oil & Ref. Co.'s No. 3 York, 1,650 ft. S and 440 ft. E of NW cor. Sec. 16, Blk. 44, Twp. 3s, T.&P. Sur... Drlg. 2,850 ft.
Humble et al's No. 4 York, 323 ft. S and 440 ft. E of NW cor. Sec. 16, Blk. 44, Twp. 3s ..... Drlg. 1,140 ft.
Humble et al's No. 5 York, 2,334 ft. S and 440 ft. E of NW cor. Sec. 16, Blk. 44, Twp. 3s ..... Drlg. 1,180 ft.; top salt 1,105 ft.
Humble et al's No. 6 York, 2,991 ft. S and 440 ft. E of NW cor. Sec. 16, Blk. 44, Twp. 3s ..... Drlg. 1,625 ft.; top salt 1,155 ft.
Independent Oil & Gas Co.'s No. 1 Eidson, 1,250 ft. S and 2,144 ft. E of NW cor. Sec. 6, Blk. 44, Twp. 3s, T.&P. Sur. ..... Location.
H. F. Wurtz' No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW, Sec. 16, Blk. 46, Twp. 3s, G.M.M.Br.&A. Sur. ..... Spudded and shut down 30 ft.
Landreth Prod. Corp.'s No. 1-A University, NE Sec. 3, Blk. 35, 110 ft. E of No. 1-T ..... Spudding.
Landreth Prod. Corp.'s No. 2 University-S, 330 ft. S and 440 ft. W of NE cor. Sec. 2, Blk. 35, University Land ..... Drlg. 2,175 ft.; top salt 1,210 ft.
Landreth Prod. Corp.'s No. 2-T University, 990 ft. from N and 330 ft. from E of Sec. 3, Blk. 35 ..... Drlg. 3,475 ft.
Llano Oil Co.'s No. 1 Midland, 330 ft. N and W of Sec. 18, Blk. 44, Twp. 3s, T.&P.R.R. Sur. ..... Total depth 3,843 ft.; sulphur water 3,838-43 ft.
T. P. Coal & Oil Co.'s No. 1 McKenzie, 1,650 ft. from S and 330 ft. from E of Sec. 28, Blk. 45, Twp. 2s, T.&P. Sur. ..... Location.
R. R. Penn et al's No. 1 Goodman et al, 2,640 ft. N and 330 ft. W of SE cor. Sec. 27, Blk. 44, T.&P.R.R. Sur... Location.
Simms Oil Co. et al's No. 1 University (was Landreth Prod. Corp.), 2,310 ft. N, 440 ft. W SE cor. Sec. 1, Blk. 35, University Land ..... Drlg. 300 ft.
Skelly Oil Co. et al's No. 1 University-A, 990 ft. S and 440 ft. N of NE cor. Sec. 1, Blk. 35, University ..... Drlg. 550 ft.
Skelly Oil Co.'s No. 2 University-H, 330 ft. S and 440 ft. W of NE cor. Sec. 1, Blk. 35, University Land ... Location.

EL PASO COUNTY

Laytex's No. 1 Malone, 2,200 ft. SW and NW, Sec. 46, J. M. Day Sur. ..... Shut down 1,481 ft.

EDWARDS COUNTY

A. M. Griffith's No. 1 Wardlow, Sec. 60, V-8, J. C. Clift Sur. ..... Shut down 3,000 ft.

FISHER COUNTY

Cranfill & Reynolds' No. 1 Johnson, 440 ft. from N and 1,540 ft. from W of Sec. 3, Blk. R, Richardson Sur... Drlg. 1,925 ft.

Cranfill & Reynolds' No. 2 Willingham, 330 ft. from N and E of NW, Sec. 199, B.B.B.&C.R.R. Sur..... Rigging up.

Mid-Kansas' No. 1 Stephens, Sec. 26, 1,800 ft. from N, 330 ft. E, El Paso County School Land ..... Drlg. 4,185 ft.

GARZA COUNTY

Humble Oil Ref. Co.'s No. 1 Carswell, 660 ft. S and E of NW cor. of Sec. 23, Blk. A-27, Public School Land ... Location.

Pandem Oil Corp.'s No. 1 Justice, 330 ft. from S and W of Sec. 12, Blk. 6, H.&G.N. Sur. ..... Location.

Pandem Oil Corp.'s No. 1 Stokes, 2,310 ft. N and E of SW, Sec. 32, Blk. 5, G.H.&H.R.R. Sur. ..... Total depth 3,018 ft.; show oil 2,908-18 ft.; plugged back to 2,938 ft.; cleaning out and plugging back to shut off water after 90-qt. shot from 2,908-28 ft.; 200 ft. oil and 1,700 ft. water in hole; cleaning out and plugging back.

GLASSCOCK COUNTY

California Co.'s No. 1 Baker, 2,310 ft. from S and 990 ft. from W, Sec. 23, Twp. 2s, Blk. 33, T.&P. Sur. ..... Rig.

California Co.'s No. 1 Jones, 330 ft. S from N and E lines, Sec. 25, Blk. 33, Twp. 2s, T.&P. Sur. ..... Derrick.

Group No. 1 Oil Co. and Continental Oil Co.'s No. 1 Miller, 330 ft. S and 990 ft. E of NW cor. Sec. 162, Blk. 29, W.&N.W.R.R. Sur. ..... Waiting on cement to set 1,449 ft.; show oil 1,400-02 ft.; salt water 1,402-14 ft.

Group No. 1 Oil and Continental Oil Co.'s No. 1 Phillips, 330 ft. S and 990 ft. E NW cor. Sec. 24, Blk. 33, Twp. 2s, T.&P.R.R. Sur. ..... Show oil 1,360 ft., 1,700 ft. and 1,800 ft.; bailing hole dry 2,122 ft.

F. H. E. Oil Co.'s No. 1 Cox, 330 ft. from S and E of SW Sec. 8, Blk. 33, Twp. 2s, T.&P. Sur. ..... Drlg. 1,940 ft.

Timberlake & Snyder's No. 1 Meek, 2,310 ft. W and 1,600 ft. N of SE cor., Sec. 7, Blk. 34, Twp. 3s, T.&P. Sur... Show oil 970 ft.; shut down 2,125 ft.

World Oil Co.'s No. 2-C McDowell, Sec. 21, Blk. 34, Twp. 2s, 330 ft. S and 2,310 ft. E of NW cor. ..... Oil from 2,435-42 ft.; now pumping 5 bbls. oil, 12 bbls. water; total depth 2,480 ft.; shut down for shot.

HOWARD COUNTY

American Maracaibo Co.'s No. 4-A Settle, 1,040 ft. S and 330 ft. E of NW cor. Sec. 6, Blk. 32, Twp. 2s, T.&P. Sur. ..... Total depth 2,260 ft.; 850 ft. oil in hole; testing.

California Co.'s No. 11 Roberts, Lease 2, 990 ft. N and 2,188 ft. W of SE cor. Sec. 137, Blk. 29, W.&N.W. R.R. Sur. ..... Total depth 3,011 ft.; top pay 2,988 ft.; 300 ft. oil in hole.

Cosden Oil Co.'s No. 6 Roberts-A, 200 ft. N and E of SW cor. Sec. 129, Blk. 29, W.&N.W.R.R. Sur. ..... Sulphur water 1,433-46 ft.; shut down 1,456 ft.

Group No. 1 and Continental Oil Co.'s No. 3 Overton, 990 ft. from N and 330 ft. from E line of Sec. 5, Blk. 32, Twp. 2s, T.&P.R.R. Sur. ..... Total depth 2,284 ft.; top pay 2,148-53 ft.; shot 70 qts. 2,150-65 ft.; swabbed 35 bbls. hourly; putting on pump.

McGinley-Sigler's No. 1 Hyman-B, 330 ft. S and W of NE cor. SW Sec. 89, Blk. 29, W.&N.W. Sur. ..... 500,000 ft. sweet gas 1,241-50 ft.; shut down 1,606 ft.

McGinley-Sigler's No. 1 Hyman-C, 330 ft. N and 990 ft. W SE cor. Sec. 93, Blk. 29, W.&N.W.R.R. Sur. ..... Location.

Merriwether's No. 1 Smith, 150 ft. from S, 2,490 ft. from W, Sec. 45, Blk. 33 ..... Underreaming 6⅝-in. casing 2,275 ft.

Moody Oil Corp.'s No. 23-B Roberts, 990 ft. from N and W of Sec. 137, Blk. 29 ..... Set 10-in. casing; shut down 261 ft.

Simms Oil Co.'s No. 2 Clay, 330 ft. from S, 2,310 ft. from W, Sec. 127, Blk. 29 ..... Oil show 1,570-80 ft.; total depth 3,160 ft.; hole full water 3,115 ft.

HUDSPETH COUNTY

California Co.'s No. 1 University, 3,821 ft. N and 2,554 ft. E of SW cor., Sec. 19, Blk. E ..... Drlg. 3,986 ft.

Carl Cromwell's No. 2 Nutt, 504 ft. S and 1,162 ft. E of NW cor., Subd. 6, Gonzales County School Land ..... Location.

Western States Oil Co.'s No. 1 Moore, C SE Sec. 16, Blk. 71, Twp. 6, T.&P. Sur. ..... Shut down 2,760 ft.

Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW, Sec. 12, Blk. 18 ..... Fishing 3,155 ft.

IRION COUNTY

Baker & Hodges et al's No. 1 Tankersley, 750 ft. from N and 170 ft. from W of Sec. 23, G.C.&S.F. Sur. .... Shut down 1,430 ft.

Beesley's No. 1 Sawyer Cattle Co., 1,320 ft. N and E of SW cor., Sec. 3,032, Blk. 24, H.&T.C.R.R. Sur. ..... Water 1,705-10 ft.; more water 1,730-40 ft.; shut down 1,950 ft.

Crawford Oil Co.'s No. 1 Williams, 450 ft. from N, 150 ft. from W, Subd. 8 ..... Shut down 1,105 ft.

Cromwell's No. 2 Nutt, 504 ft. from N and 1,162 ft. from W of Subd. 6, Gonzales County School Lands... Drlg. 150 ft.

Kingwood Oil Co. et al's No. 1 J. D. Suggs, SE NW SE, Sec. 19, Blk. 7, H.&T.C. Sur. ..... Show gas 7,656 ft.; encountered 2,-400 ft. sulphur water 7,818 ft.; plugged back with lead wool to 7,718 ft.; plugged back with cement to 7,668 ft.; shot 20 qts. 7,645-68 ft.; no results; now plugging back to shoot upper shows.

J. A. Starkweather's No. 1 Lindley, Sec. 1,160⅓, 900 ft. from S, 150 ft. from E, H.&T.C. Sur. on E ..... Hole full salt water 3,275-83 ft.; plugging.

P. H. Williams' No. 1 Ash, C of Sec. 20, Washington County ..... Show gas 7,931 ft.; drlg. 7,983 ft.

JONES COUNTY

Mid-Tex Oil & Gas Co.'s No. 1 King ..... Shut down 1,880 ft.

Phillips Pet. Co.'s No. 1 Coates, 900 ft. S and 330 ft. W of NE cor. W half SW of Sec. 17, Blk. 19, T.&P.R.R. Sur. ..... Drlg. 815 ft.

Shabeen et al's No. 1 King ..... 800 ft. fluid in hole; shut down 2,204 ft.; top pay 2,061 ft.; cleaning out after shot.

W. S. Ware's No. 2 Newman, 150 ft. from N and 2,090 ft. from E of Sec. 52, Blk. 18, T.&P.R.R. Sur. ..... Show oil 2,531-33 ft.; swabbed 6 bbls. oil, 6 bbls. water 2,529-31 ft.

KENT COUNTY

White & Smith's No. 1 Pursley estate, 1,320 ft. from E and 2,640 ft. from S of Sec. 8, Blk. H, H.&T.B. Sur... Shut down 273 ft.

KIMBLE COUNTY

McLean & Jamison's No. 1 Cannon, 1,940 ft. N and 300 ft. W of SE cor. Robert Cochran Sur. ..... Fishing 1,650 ft.

LOVING COUNTY

California Co.'s No. 1 Allen, 330 ft. from SE and SW of Sec. 90, Blk. 1, W.&N.W. Sur. ..... Drlg. 505 ft., red shale.

California Co.'s No. 1 Reagan & McElvain, 330 ft. SW of NE line and 330 ft. SE of NW line, Sec. 84, Blk. 1, W.&N.W.R.R. Sur. ..... Spudding.

Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur. ..... Drlg. 640 ft.

Hadlock et al's No. 2 Russell, 1,650 ft. SW of NE line, 2,310 ft. NW of SE line, Sec. 80, Blk. 1, W.&N.W. R.R. Sur. ..... Rigging up.

Lockhart & Co.'s No. 2 fee, 676 ft. S, 330 ft. W, Sec. 91, Blk. 1, W.&N.W. Sur. ..... Spudded 140 ft.; shut down.

Lockhart & Co.'s No. 3 Hubbard, 1,650 ft. from NE line, 330 ft. NW line of Sec. 83, Blk. 33, H.&T.C.R.R. Sur.. Location.

Lockhart & Co.'s No. 5 Hubbard, 1,650 ft. SW of NE line and 330 ft. SE of NW line Sec. 83, Blk. 33, H.&T.C. ..... Drlg. 2,336 ft.; top pay 2,305-08 ft.; swabbed 33 bbls.

Lockhart's No. 1 Wheat & Ramsey, 440 ft. from NE and NW of Sec. 83, Blk. 1, W.&N.W. Sur. ..... Building rig.

LYNN COUNTY

Lubewell Oil Co.'s No. 1 May, 2,310 ft. S, 2,310 ft. W, Sec. 10, Blk. 7, E.L.R.R. Sur. ..... Shut down 190 ft. for casing.

George McCamey's No. 1 Edwards, 165 ft. N and E, Sec. 5, Blk. 2, L.S.&W. Sur. ..... Top salt 2,140 ft.; oil show 1,580-90 ft.; hole full sulphur water 4,730 ft.; set 6-in. casing 4,733 ft.; shut down 5,040 ft.

MENARD COUNTY

Cromwell & Duffey's No. 2 Winslow, 250 ft. S and E of NW cor. NE of NE, Sec. 36, J. H. Gibson Sur. ..... Drlg. 1,710 ft.

I. C. Barnett's No. 2 Callan, Sec. 1, 1,050 ft. from S, 1,190 ft. W ..... 2½ bbls. water hourly, 1,100,000 ft. gas, 1,268 ft.

Priest's No. 1 Sorrell, 1,000 ft. from E and 200 ft. from S cor. Sec. 132, E.L.R.R. Sur. ..... Drlg. 752 ft.

MIDLAND COUNTY

Pure Oil Co.'s No. 1 Hutt, 2,310 ft. from N and 330 ft. from E of Sec. 14, Blk. 38, Twp. 4s, T.&P. Sur. ..... Spudding 75 ft.

MITCHELL COUNTY

Magnolia Petroleum Co.'s No. 7 Mary Foster, 330 ft. from N and W line of Sec. 17, Blk. 29, Twp. 1s, T.&P.R.R. Sur. ..... Drlg. 1,474 ft.

Morrison et al's No. 2 Morrison, 2,390 ft. from N and 660 ft. from E of Sec. 31, Blk. 28, Twp. 1n, T.&P. R.R. Sur. ..... Spudding.

Teas & Wheeler's No. 1 Radford, 1,320 ft. N and W of Sec. 1, Blk. 27, T.&P. Sur. ..... Drlg. 4,866 ft.

NOLAN COUNTY

Gibson & Johnson's No. 1 Bond, 1,320 ft. from N and 1,980 ft. from E of Sec. 42, Blk. 20, T.&P. Sur. ..... Cleaning out 3,284 ft.

PECOS COUNTY

Amerada Pet. Corp.'s No. 1-B University, 1,650 ft. from W and 990 ft. from S, Sec. 32, Blk. 16 ..... Total depth 1,550 ft.; top pay 1,545 ft.; flowed 32 bbls.

Angelo Pet. Co. et al's No. 1 McKenzie, 480 ft. from N and 330 ft. E of CNL Sec. 3, Blk. 604, G.C.&S.F. Sur... Total depth 685 ft.; underreaming 10-in. casing.

Atlantic O. P. Co.'s No. 1 Shearer, 330 ft. from NW and SW Sec. 107, Blk. 10, H.Y.N.R.R. Sur. ..... Show oil and gas 1,052 ft. and 1,170 ft.; shut down for orders 1,497 ft.; top pay 1,438 ft.; swabbed 80 bbls. first 24 hrs., 3 bbls. water, 1,465-97 ft.

Bennett et al's No. 1 fee, 330 ft. W of CWL of Sec. 1, Blk. 119, G.C.&S.F. Sur., but in Sec. 8 ..... Spudded and shut down.

Cardinal Oil Co.'s No. 1 Tippett-Kirby, 330 ft. W and 1,350 ft. N from center of S line, Sec. 40, Blk. 194, G.C.&S.F.R.R. Sur. ..... Drlg. 55 ft.

Continental Oil Co.'s No. 6 University, 330 ft. S and 3,031 ft. E of NW cor. of Sec. 6, Blk. 17, University Land ..... Cellar.

Cosby Prod. & Ref. Co.'s No. 1 Cordova, 330 ft. from N and E of S 320 ac., Sec. 11, Blk. 11, H.&G.N. Sur. ... Drlg. 880 ft.

Cosden Oil Co.'s No. 1 McDonald, 350 ft. from N and E of Sec. 1, H.E.&W.T. Sur. ..... Flowing water 1,645 ft.; shut down 2,016 ft.

Cowboy Evans' No. 1 Pecos Valley, 1,307 ft. from SE line, 907 ft. from SW line to Sec. 36, Blk. 3, H.&T.C.R.R. Sur. ..... Location.

Cromwell et al's No. 1 University, 1,980 ft. from S and 1,320 ft. from E, Sec. 16, Blk. 16 ..... Location.

Dixie Oil Co.'s No. 1 McKinzie, 3,300 ft. from N and 2,025 ft. from W of Sec. 15, Blk. 604, G.C.&S.F. ..... Drlg. 2,475 ft.

Dixie Oil Co.'s No. 3 Forborg, 735 ft. N and 150 ft. E from CSL of Sec. 539, Blk. A-3, Arnold & Barrett Sur. ..... Location.

A. M. Griffith's No. 1 Ferrenbach et al, 2,112 ft. from W line, 1,320 ft. from S line, Sec. 9, Blk. 603, G.C.&S.F. Sur. ..... Drlg. 2,610 ft.

Galt-Brown's No. 1 Thompson, 660 ft. from S and 1,100 ft. from E Sec. 71, Blk. 194, G.C.&S.F. Sur. ..... Drlg. 490 ft.

Hayes et al's No. 1 Lea, C NW of NE Sec. 9, Blk. 106, T.&St.L. Sur. ..... Location.

Hussman Oil Co.'s No. 1 Esters, 960 ft. from N and 300 ft. E, Sec. 83, Blk. OW, T.M.R.R. Sur. ..... Total depth 1,500 ft.

Independent Oil & Gas Co.'s No. 1 Jasper County School Land, 1,160 ft. from SE line, 160 ft. from NE line, Sec. 21, Blk. 10, H.&G.N.R.R. Sur. ..... Location.

Landreth Prod. and Henshaw Bros.' No. 1-E University, 330 ft. N and W of SE cor. W half NE, Sec. 13, Blk. 18, University Land ..... Total depth 1,210 ft.; 4,000,000 ft. gas.

Landreth Prod. and Henshaw Bros.' No. 2-I University, 330 ft. S and W of NE, Sec. 24, Blk. 18, University Land ..... Cellar.

Martin A. Meyer et al's (formerly Mauch & Kroger) No. 1 Holmes, S half SW Sec. 5, Blk. 178, T.C. Sur. ..... Shut down at 2,224 ft.; 5 bailers sulphur water hourly 2,216-24 ft.

Messenger et al's No. 1 Byrne, 2,130 ft. from NW line, 1,830 ft. from SW line, Sec. 54, Blk. 10, H.&G.N.R.R. Sur. ..... Rigging up.

R. E. Moore's No. 1 Arnold, 1,320 ft. from S and 660 ft. from E lines of Sec. 18, Blk. 1, H.&T.C.R.R. Sur. .... Show oil 1,216 ft.; show oil 1,402 ft.; pulling 8-in. casing; shut down for orders 1,850 ft.

J. D. O'Mara's No. 1 Bennett, Sec. 592, 1,460 ft. from S, 150 ft. from E, G.C.&S.F. Sur. ..... Cleaning out 875 ft.

J. D. O'Mara's No. 1 Streety, C of Sec. 1, W. P. Howard Sur. ..... Show oil 1,785 ft.; shut down 1,905 ft.

Peren Oil Co.'s No. 2 Eaton, C of E of W, Sec. 27, Blk. 3, H.&T.C.R.R. Sur. ..... Spudded and shut down.

R. W. Porpus et al's No. 1 State Land, 330 ft. S and W lines of NE, Sec. 28, Blk. OW, T.C.R.R. Sur. ..... Location.

M. M. Rowan's No. 1 University, NE, Sec. 25, Blk. 16 .... Total depth 2,490 ft.; plugged back 1,815 ft.; machine moved off.

Phillips Pet. Co.'s No. 3 Monroe, 3,860 ft. from N and 660 ft. from E Sec. 39, Blk. 194, G.C.&S.F. ..... Cellar.

Phillips Pet. Co.'s No. 5 Ramsey, 330 ft. from N and 1,650 ft. from W of Sec. 17, Blk. 194 ..... Underreaming 10-in. casing 905 ft.

Phillips Pet. Corp.'s No. 1 Shearer, 330 ft. from NE and SE lines of S, Sec. 99, Blk. 10, H.G.N.R.R. Sur. .. Rigging up.

Rector Oil Co.'s No. 1 Young, 330 ft. S and 1,650 ft. E of SW cor. Sec. 26, Blk. 9, H.&G.N. Sur., but in Sec. 4, Blk. 3, H.&T.C. Sur. ..... Drlg. 168 ft.

Southern Crude O. P. Co.'s No. 1 Eaton, 330 ft. from SE line, 1,650 ft. from SW line of Sec. 35, Blk. 3, H.T.C.R.R. Sur. ..... Rig.

Southern Crude Oil Pur. Co.'s No. 1 McKenzie, Sec. 10, Blk. 604 ... Show oil 2,005 ft.; total depth 2,315 ft.; plugged back to gas.

Shell Pet. Corp.'s No. 1 Percival, 330 ft. from N and E of SE, Sec. 199, Blk. 3, I.&G.N. Sur. ... Location.

Shell Pet. Corp.'s No. 1-D University, 1,650 ft. from E and 990 ft. from W of Sec. 32, Blk. 16 ... Show gas 936 ft.; ran 6-in. casing 1,630 ft. in shale.

Shell Pet. Corp.'s No. 2-B Smith, 1,006 ft. S and 330 ft. W of NE cor. Sec. 24, Blk. 194, G.C.&S.F.R.R. Sur. ... Drlg. 1,280 ft.

Shell Pet. Corp.'s No. 5 Smith-D, 990 ft. N and W of SE cor. of Sec. 24, Blk. 194, G.C.&S.F.R.R. Sur. ... Drlg. by tools 435 ft.

Shell Pet. Corp.'s No. 1 University-E, 330 ft. from S and W lines of NE Sec. 31, Blk. 16, University Land ... Location.

Sides & Cloyd's No. 2 Blackstone & Slaughter, C NW of Sec. 34, Blk. A-2, T.&C.R.R. Sur. ... Shut down 802 ft.

Simms Pet. Co.'s No. 1 University, 1,650 ft. N and 330 ft. W of SE cor. Sec. 21, Blk. 19, University Land ... Shut down 1,245 ft.; fishing.

Skelly Oil Co.'s No. 2 University-Bower, 330 ft. S and E of NW cor. of SE Sec. 31, Blk. 16, University ... Total depth 972 ft.; top pay 964 ft.; flowed 264 bbls. oil 24 hrs.

The Texas Company's No. 1 Wright, 660 ft. S and E of NW cor. Sec. 9, Blk. 131, T.&S.T.L. Sur. ... Drlg. 225 ft.

Transcontinental Oil Co.'s No. 1 University ... Straightening crooked hole 4,910 ft.

Transcontinental and Arkansas' No. 2 Matthews, 1,080 ft. from E and 330 ft. from N line of SE Sec. 10, Blk. 194, G.C.&S.F.R.R. Sur. ... Top pay 1,472 ft.; total depth 1,715 ft.; fishing.

Transcontinental and Arkansas Fuel Co.'s No. 3 Matthews (Smith), 330 ft. from S, 1,960 ft. from E of NE Sec. 10, Blk. 194, G.C.&S.F. Sur. ... Topped lime 1,414 ft.; 200 ft. oil in hole; drlg. 1,500 ft.

Transcontinental and Arkansas Fuel Oil Co.'s No. 1-A Smith, 2,310 ft. from N and 1,290 ft. from E of Sec. 11, Blk. 194, G.C.&S.F. Sur. ... Drlg. 1,065 ft.

Transcontinental Oil Co. et al's No. 2 Sellman, 990 ft. from N and 2,310 ft. from E of Sec. 8, Blk. Z, T.C. Sur. ... Running 6-in. casing 1,715 ft.

Trees Oil Co.'s No. 3 Trees, 330 ft. from S and W of Sec. 90, Blk. 8, H.&G.N. Sur. ... Hole full sulphur water 1,305-12 ft.; drlg. 1,430 ft.

W. F. Walsh et al's No. 1 Scharbaur Cattle Co., 330 ft. S and 990 ft. E from center, Sec. 16, Blk. 136, T.&St.L.R.R. Sur. ... Cellar.

World Oil Co.'s No. 1-C University, 1,650 ft. from N, 990 ft. W, Sec. 7, Blk. 20, University Land ... Set 10-in. casing 753 ft.; shut down 1,763 ft.

PRESIDIO COUNTY

Eastland Oil Co.'s No. 1 Tootle, C Sec. 17, Blk. 1, D.P. R.R. Sur. ... Spudded; shut down.

REAGAN COUNTY

Big Lake Oil Co.'s No. 1-C University, 2,598 ft. S and 250 ft. W of NE cor., Sec. 1, Blk. 2, University Land.. Top pay 2,903 ft.; 1,000 ft. fluid in hole; top pay 6,807 ft.; shut down 8,430 ft.; hole is 2° off at 8,340 ft.; cleaning out.

Big Lake Oil Co.'s No. 4-C University, 1,120 ft. from N and 1,096 ft. from E of Sec. 1, Blk. 2 ... Showing oil and gas at 8,220 ft.; total depth 8,220 ft.; flowed an average 122 bbls. daily.

Texon Oil & Land Co.'s No. 2-B University, 4,655 ft. from S, 250 ft. from W, Sec. 36, Blk. 9 ... Total depth 5,914 ft.

Texon Oil & Land Co.'s No. 3-B University, 2,240 ft. from S, 920 ft. from W, Sec. 36, Blk. 9 ... Drlg. 4,361 ft.

REEVES COUNTY

Exploration Co.'s No. 1 A. A. Kinney, 1,500 ft. W of NE cor. Sec. 26, Blk. C-18, Public School Land, elev. 2,847 ft. ... Shut down 2,990 ft.

H. T. Hansford's No. 1 Williams, 150 ft. from S and W, Sec. 17, Blk. 6, H.&G.N. Sur. ... Shut down 380 ft.

Black & Fink's No. 1 Brooks, 1,980 ft. N and 660 ft. W Sec. 16, Blk. 59 ... Shut down 1,827 ft.

Southern Crude Oil Pur. Co.'s No. 1 Kloh-Rumsey, 2,310 ft. N and W SE cor., Sec. 23, Blk. 51 ... Show oil 3,410-20 ft.; shut down 3,575 ft.

David R. Thompson's No. 1 A. A. Eddins, Sec. 9, Blk. C-1 ... Shut down 5,658 ft.

RUNNELS COUNTY

Gibson & Johnson's No. 1 Johnson, 2,310 ft. N and 1,650 ft. W of SE cor., Sec. 150, E.T.R.R. Sur. ... Drlg. 1,410 ft.

Gibson & Johnson's No. 2 Serratt, 2,310 ft. from S and 1,650 ft. from E of Sec. 150, E.T.R.R. Sur. ... Derrick.

George W. Boyce's No. 1 Lang, 2,310 ft. N, 6,900 ft. E, Sec. 262 ... Show oil 2,028 ft.; running 8¼-in. casing 2,360 ft.

McLean's No. 1 Clayton, 150 ft. from N line, 270 ft. from W line of Sec. 133 ... Shut down 1,185 ft.; probably be abandoned.

SCHLEICHER COUNTY

Delmar Oil Co.'s No. 1 O'Harrow, C of NW, Sec. 56, Blk. 1, G.H.&S.A.R.R. Sur. ... Underreaming 8¼-in. casing; total depth 2,635 ft.

Interstate's No. 1 Whitten, 1,320 ft. from N and W, Sec. 35, Blk. LL, T.C.R.R. Sur. ... Drlg. 6,010 ft.

George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,470 ft. from W, G.H.&S.A.R.R. Sur. ... Underreaming 8¼-in. casing; total depth 2,270 ft.

SCURRY COUNTY

Byrd & Harmon's No. 1 Murphy, Jr., 330 ft. from N and E of Sec. 114, Blk. 97, H.&T.C. Sur. ... Shut down 1,732 ft.

Camp Spring Oil & Ref. Co.'s No. 3 Guinn, 1,300 ft. from S, 300 ft. from E. Sec. 12, Blk. 3, H.&T.C.R.R. Sur. ... Drlg. 3,925 ft.; hole full water 3,915-19 ft.

I. B. Mimms et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 2, H.&T.C.R.R. Sur. ... Spudded and shut down 300 ft.

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ... Cleaning out and underreaming 6⅝-in. casing 4,325 ft.

E. L. Smith Oil Co.'s No. 1 Moore, 1,320 ft. from S and W, Sec. 379, Blk. 97 ... Top salt 750 ft.; encountered 500,000 ft. gas 1,510 ft.; oil show 2,215 ft.; shut down 4,050 ft.

Transcontinental Oil Co.'s No. 1 Peckham, 330 ft. from S and W of R. N. Miller Sur. ... Cleaning out 510 ft.

SUTTON COUNTY

Independent Oil & Gas Co.'s No. 1 Willson, Sec. 30, Blk. A, 1,650 ft. from N, 2,310 ft. from W ... Location.

TAYLOR COUNTY

Condor Pet. Co.'s No. 1 Allen, C of NW, Sec. 220, Blk. 64, H.T.C.R.R. Sur. ... Drlg. 1,365 ft.

A. H. Gibson et al's No. 1 Cody, 888 ft. N and 160 ft. W of SE cor. Lot 2, Sec. 18, Guadalupe County School Land ... Running 12½-in. casing 625 ft.

Gibson & Johnson's No. 1 Bingham, 330 ft. N and E of SW cor. their 270.8-ac. tract, Sec. 31, Guadalupe County School Land ... Drlg. 180 ft.

John B. Jameson's No. 1 Webb, 1,170 ft. S and W of NE cor., Sec. 46, Lunatic Asylum Land ... Show oil 4,917 ft.; drlg. 5,425 ft.

Mid-Continent Pet. Corp.'s No. 1 Lindsey, 239 ft. N and 219 ft. E of SW cor. Subd. 22, Guadalupe County School Land ... Location.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW, Sec. 155, Blk. D, M.-K.-T.R.R. Sur. ... Drlg. 1,290 ft.

Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Georgetown Ry. Sur. ... Shut down 3,150 ft.

Mrs. J. B. McPhee's No. 1 Sam Belt, C Sec. 78, Blk. D-7, E.L.R.R. Sur. ... Shut down 880 ft.; moved off machine.

Transcontinental Oil Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S, Sec. 26, Blk. 161, G.C.&S.F.R.R. Sur. ... Drlg., 2,580 ft.

Woodley & Jones' No. 1 Pankenham, C SE NW, Sec. 43, Blk. B-2, C.C.S.D.&N.G.R.R. Sur. ... Shut down 640 ft.

TERRY COUNTY

Atlantic et al's No. 1 Carlisle, 990 ft. from S and E of Sec. 58, Blk. E, E.L.&R.R. Sur. ... Drlg. 400 ft.

Kingsland Oil Prod. Co.'s No. 1 Brownfield, C NW SW SW, Sec. 7, Blk. 1-A, E.L.R.R. Sur. ... Fishing bailer 5,080 ft.

TOM GREEN COUNTY

Cannon et al's No. 1 Rust, 990 ft. S, 990 ft. W of NE cor. of Sec. 745 ... Location.

Ellis et al's No. 1 Lewis, 450 ft. S and 150 ft. E of SE cor. of J.W. Sur. in Albert Black Sur., Sec. 75 ... Show oil 428-43 ft.; shot 20 qts. 428-40 ft.; no results.

Fitzgerald & Taliaferro's No. 1 Bennett, C SW, Sec. 1,628, E. H. Ringer ... Plugged back to 2,405 ft. to straighten hole; shut down 2,447 ft.

Phillips Pet. Co.'s No. 1 Golden, 1,250 ft. from N and 1,583 ft. W of Sec. 77, James Webb Sur. ... Spudding.

E. W. Wiley et al's No. 1 Maier, 200 ft. from E, 110 ft. from N, Sec. 6, Blind Asylum Land ... Show oil 413-20 ft.; total depth 512 ft.; sulphur water 399-414 ft.

UPTON COUNTY

Cordova Union Land Co.'s No. 1 Fee, 330 ft. from S and E line of Sec. 1, Blk. 1, M.K.&T.R.R. Sur. ... Location.

Eppenauer Drlg. Co.'s No. 1 Chaney, 2,310 ft. from N and 330 ft. from W of Sec. 18, Blk. 3, M.-K.-T. Sur. .. Drlg. 480 ft.

Gulf Prod. Co.'s No. 3-B Hughes, 160 ft. N and 161 ft. W of most southerly SE cor. of their 200-ac. lease "B" out of Wm. Teer Sur. ... Rig.

Pure Oil Co.'s No. 3 Hughes, 150 ft. S and 767 ft. E of NW of their 300 ac., Sec. 4, Wm. Teer Sur. ... Partly rigged up; shut down 610 ft.

T. P. Coal & Oil Co.'s No. 1 Belcher, 1,320 ft. from N and 2,310 ft. from W line, Sec. 10, Blk. 4½, G.C.& S.F.R.R. Sur. ... Top salt 1,310 ft.; drlg. 2,540 ft.

VAL VERDE COUNTY

A. Bluhm's No. 1 Yoas, 1,760 ft. N, 600 ft. W of SE cor. Sec. 31, Blk. 3, I.&G.N. Sur. ... Machine on ground.

Independent Operators' No. 1 Whitehead, SE SE Sec. 30, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ... Shut down 4,850 ft.

O. O. Owen's No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ... Gas sand 2,491-2,520 ft.; tested 125-700 ft. gas; shut down 5,727 ft.

Phantom Oil Co.'s No. 1 Ingram, 175 ft. W of E line and 300 ft. N of S line, Sec. 44, Blk. D-3, E.L.&R.R. Sur... Show oil 1,535 ft.; cem. 10-in. casing 2,551 ft.

Valvert Oil Corp.'s No. 1 Bassett, C NE, Sec. 47, Blk. Y.. Shut down 4,009 ft.

WARD COUNTY

Alpine Oil & Gas Co.'s No. 1 Dakan, 228 ft. from NE and 150 ft. from SE line, Tract 8, Sec. 11, Blk. 5, H.&T.C. Sur. ... 1,000 ft. oil in hole; top pay 2,148 ft.; total depth 2,210 ft.; shot 90 qts. 2,125-35 ft.

E. J. Anderson's No. 1 Johnson, 150 ft. N, 345 ft. E, Sec. 7, Blk. 32, H.&T.C.R.R. Sur. ... Top salt 815 ft.; top pay 2,155 ft.; swabbing 20 bbls. day; total depth 2,200 ft.; rerunning 6-in. casing.

Atlantic et al's No. 1 Dorr, 1,730 ft. S, 990 ft. W, Sec. 2, J. Howe Sur. ... Drlg. 2,220 ft.

Atlantic and Delmar's No. 1 Hayzlett, 1,650 ft. from NE and NW of Sec. 17, Blk. 5 ... Location.

Gulf Prod. Co.'s No. 3 Hutchins, 2,310 ft. from N and 330 ft. from W. Sec. 1, Blk. F, G.M.M.B.&A. Sur. .... Top salt 1,035 ft.; top brown lime 2,310 ft.; increase in gas 2,608-10 ft.; show oil 2,685 ft.; flowed 155 bbls. oil, total depth 3,102 ft.

Gulf Prod. Co.'s No. 7 O'Brien, 320 ft. Sand W, Sec. 22, Blk. F, G.M.M.B.&A. Sur. ... Hole full sulphur water 3,403 ft.; slopped over casing; total depth 3,566 ft.; plugged back to 3,025 ft.; preparnig to test; swedging 8¼-in. casing 2,280 ft.

Gulf Prod. Co.'s No. 3 Wristen Bros., 220 ft. NE of SW and 220 ft. SE of NW, Sec. 18, Blk. 5, H.&T.C. Sur. .. Show gas 1,960-70 ft.; filling up with sulphur water 2,520-27 ft.; salt water 2,545; plugged back to 2,477 ft.

Tex-Oil Production Co.'s No. 1 Redman, 1,980 ft. NE of SW line and 1,980 ft. SE of NW line, Sec. 152, Blk. 34, H.&T.C.R.R. Sur. ... Show gas 2,806-09 ft.; shot 30 qts. 3,245-75 ft.; drlg. 3,660 ft.; shot 120 qts. from 3,240-75 ft.; shut down 4,395 ft.

Penn and Atlantic's No. 2 Bennett, 2,310 ft. S line, 1,650 ft. W line, Sec. 16, Blk. 34, H.&T.C.R.R. Sur. ... Top pay 2,347 ft.; total depth 2,630 ft.; cleaning out after shot; averaging 20 bbls. daily.

Richardson et al's No. 1 O'Brien et al, 332 ft. from N and 360 ft. from W Sec. 5, Blk. F, G.M.M.B.&A. Sur... Top salt 1,230 ft.; drlg. 1,235 ft.

Shell Pet. Corp.'s No. 1 Owens, located NE cor. of Sec. 16, Blk. 15, H.&T.C.R.R. Sur. ... Top pay 2,886-93 ft.; increase at 2,909 ft. and 3,023-32 ft.; shot 90 quarts from 2,473-93 ft.; increase in oil 3,022-32 ft.; averaging 37 bbls. day; drlg. 4,230 ft., brown lime.

Shipley et al's No. 4 Hayzlett, 2,050 ft. NW of SE and 2,420 ft. NE of SW line of Sec. 17, Blk. 5, H.&T.C. R.R. Sur. ... Top salt 720 ft.; drlg. 2,698 ft.

Shipley et al's No. 5 Hayzlett, assume common line Secs. 16 and 17 is N and S, 220 ft. S and 1,910 ft. W, Sec. 17, Blk. 5 ... Standard rig.

Shipley et al's No. 1 Monroe, 330 ft. SE SW, Sec. 3, Blk. 1 ... Shut down 385 ft.

J. E. Smith's No. 1 Clement, 153 ft. SW of NE line and 153 ft. SE of NW line, Lot 7, Sec. 7, Blk. 32, H.&T.C.R.R. ... Shut down 560 ft.

Southern Crude Oil Purch. Co.'s No. 1 Harris, 1,455 ft. from N and 1,406 ft. from E of Sec. 30, Blk. B-19 ... Cem. 8⅝-in. casing 2,437 ft.

Sturm & Paine's No. 1 Cummins, 748 ft. from NE and 155 ft. from NW of Sec. 7, Blk. 32, H.&T.C.R.R. Sur... Shut down 2,350 ft.; show oil and gas 2,170 ft.

Sun Oil Co.'s No. 2 Sealy, 330 ft. from N and E of Sec. 88, Blk. F, G.M.M.B.&A. Sur. ... Drlg. 2,508 ft.

WINKLER COUNTY

A. W. Phillips' No. 2 Brown et al, 2,000 ft. S and W of NE, Sec. 4, Blk. B-5, Public School Land ... Top salt 1,300 ft.; shut down 2,832 ft.; show oil 2,775-85 ft.

Cinderella Syndicate's No. 1 Hendricks, 330 ft. N, 1,650 ft. W, Sec. 42, Blk. 26, Public School Land ... Total depth 150 ft.; rig.

Humble Oil & Ref. Co.'s No. 3 Wahon-B, 2,310 ft. S and W of NE cor. Sec. 47, Blk. 26, School Land ... Drlg. 2,267 ft., lime; cem. casing.

Liner Drlg. Co.'s No. 1 Campbell, 330 ft. from N and E cor., Sec. 2, Blk. B-5 ... Top brown lime 2,510 ft.; cleaning out 3,685 ft.; to drill deeper.

Shell and The Texas Company's No. 1-B Cowden, 660 ft. from S and W of Sec. 39, Blk. B-5, Public School Land ... Drlg. 2,209 ft.

Sun Oil Co.'s No. 1 Sealy, 2,310 ft. N line, 330 ft. from W line, Sec. 52, Blk. F, C.M.M.B.&A. Sur. ... Drlg. 3,194 ft., hard lime.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 70)

DONLEY COUNTY

Blue Bonnett Oil Co.'s No. 1 Ball, 1,075 ft. N line, 935 ft. E line, Sec. 22, Blk. E, D.&P.R.R. Sur. ..... T.D. 3,006 ft.; contract depth.
Marine Oil Co.'s No. 1 Sawyer, C SW, Sec. 5, Blk. G, G.C.&S.F. Sur. ..... S.D. 3,875 ft.

GRAY COUNTY

Adams Oil Co.'s No. 4 Morse, 330 ft. S and W, NE cor., Sec. 3, Blk. 26, H.&G.N.R.R. Sur. ..... S.D. 2,495 ft.
Baldridge & Lilley's No. 1 Melton, 330 ft. N and W, E½ SE, Sec. 95, Blk. B-2, H.&G.N.R.R. Sur. ..... Rig.
Camel Oil Co.'s No. 2-B Harrah, 330 ft. N and E, Sec. 150, Blk. 3, I.&G.N.R.R. Sur. ..... Swedging 8¼-in. csg. 2,450 ft.
Cockrell-McIlroy Oil Co.'s No. 1 Castleberry, 330 ft. S and E, Sec. 126, Blk. 3, I.&G.N. Sur. ..... Rig on ground.
Constantine et als' No. 1 Crews, 330 ft. S and W, NE cor. SW, Sec. 20, Blk. 30, H.&G.N.R.R. Sur. ..... Shot 130 qts. 2,630-50 ft; T.D. 2,650 ft.; straightening crooked hole.
Danciger Ref. and Champlin Ref. Co.'s No. 4 Cook-Faulkner, 330 ft. S, 1,146 ft. W, NE cor. E 120 ac., W 210 ac., Sec. 30, Blk. B-2, H.&G.N.R.R. Sur.. Drlg. 1,433 ft.
Danciger Ref. and Champlin Ref. Co.'s No. 5 Cook-Faulkner, 330 ft. S, 706 ft. W, NE cor. E 120 ac., W 210 ac., Sec. 30, Blk. B-2, H.&G.N.R.R. Sur. ..... Drlg. 1,816 ft.
Danciger et als' No. 11 Jackson, 330 ft. S, 1,320 ft. W, NE cor. NW, Sec. 88, Blk. B-2, H.&G.N. Sur. ..... Cleaning out 2,906 ft.
Danciger O. & R. Co.'s No. 5 Morse, 330 ft. N and E, SW SW NW, Sec. 1, Blk. 26, H.&G.N.R.R. Sur. .... S.D. 2,505 ft.
Danciger O. & R. Co.'s No. 1 Shaw, 330 ft. S, 286 ft. E of E 39½ ac., NW, Sec. 5, Blk. 1, A.C.H.&B. Sur. .. T.D. 2,588 ft.
Danciger O. & R. Co.'s No. 1 Williams, 330 ft. N, 330 ft. E, S½ NW ..... Estimated 15,000,000 ft. gas 2,610-70 ft.; S.D. 2,720 ft.
Dixon Creek Oil Co.'s No. 1 Harrah, 330 ft. ea. way NW cor. SE NE, Sec. 150, Blk. 3, I.&G.N.R.R. Sur.. U.R. 8¼-in. csg. 2,395 ft.
Dunlop's No. 4 Morse, 330 ft. N and E, SW cor. SW, Sec. 17, Blk. A-9, H.&G.N.R.R. Sur. ..... T.D. 2,431 ft.
Empire G. & F. Co.'s No. 1 Meer-B, 330 ft. S line, 990 ft. W line, SW, Sec. 106, Blk. 3, I.&G.N.R.R. Sur. .. Spudding.
Empire Gas & Fuel Co.'s No. 1 Shields, 330 ft. each way out of SE cor. NE, Sec. 151, Blk. 3, I.&G.N.R.R. Survey ..... Location.
Follet Pet. Corp.'s No. 1 Hood, 330 ft. S and W of W 80 ac., SW, Sec. 32, Blk. 3, H.&G.N.R.R. Sur. ..... Cmtd. 10-in. csg. 732 ft.
Gardner Bros. and Collins' No. 2 Saunders, 955 ft. S, 330 ft. E of W 68 ac., E½, J. G. Eustice Sur. ..... Location.
Grallup et als' No. 1 Morse, 330 ft. ea. way, NE cor. SE, Sec. 3, Blk. 26, H.&G.N.R.R. Sur. ..... S.D. 2,105 ft.
Gulf Prod. Co.'s No. 1 Bowers, 967 ft. N and E, SW cor. SE, Sec. 63, Blk. B-2, H.&G.N.R.R. Sur. ..... Drlg. 2,540 ft.; lime.
Haymer O. & G. Co.'s No. 1 Morse, 330 ft. ea. way out of SE cor. E½ SE, Sec. 45, Blk. A-9, H.&G.N. Sur. ..... Drlg. 2,425 ft.
Humble O. & R. Co.'s No. 1 Combs-Worley, 330 ft. S and W, N½ SE, Sec. 36, Blk. 3, I.&G.N.R.R. Sur. .. S.G. 2,340-45 ft; and 2,420 ft; T. D. 2,800 ft; drlg. out plug.
Lenix et als' No. 1 Bradford, 330 ft. N and E, W½ SE, Sec. 118, Blk. B-2, H.&G.N.R.R. Sur. ..... S.D. 240 ft.
Lyon et als' No. 1-A Morse, 330 ft. S and W, NW NW, Sec. 1, Blk. 26, H.&G.N.R.R. Sur. ..... Rig.
Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W cor. SE, Sec. 200, Blk. B-2, H.&T.N. Sur. ..... Spudded and S.D.
Magnolia Pet. Co.'s No. 4 Harrah, 330 ft. ea. way, SW cor. NW, Sec. 150, Blk. 3, I.&G.N.R.R. Sur. .... Drlg. 2,550 ft.
Magnolia Pet. Co.'s No. 1 Cubine, 330 ft. N and W, NE, Sec. 36, Blk. 25, H.&G.N.R.R. Sur. ..... Repairing rig 1,565 ft.
Magnolia Pet. Co.'s No. 5 Magnolia, 990 ft. N, 330 ft. E, SW cor., Sec. 14, Blk. 3, I.&G.N.R.R. Sur. ..... Rigging up.
Magnolia Pet. Co.'s No. 4 Wright, 330 ft. N and W, SE cor. S½ SW, Sec. 13, Blk. 3, I.&G.N.R.R. Sur. .. Drlg. 2,520 ft.
Magnolia Pet. Co.'s No. 5 Wright, 330 ft. N, 752 ft. W, SE cor. S½ SW, Sec. 13, Blk. 3, I.&G.N.R.R. Sur. .. Drlg. 2,090 ft.
McAuley et als' No. 4 Morse, 330 ft. N and W, SE cor. NE, Sec. 2, Blk. 26, H.&G.N.R.R. Sur. ..... Rig.
McIlroy Oil Co.'s No. 1 Arnold, 340 ft. ea. way, NW cor. NW, Sec. 139, Blk. 3, I.&G.N.R.R. Sur. ..... T.D. 3,225 ft.; S.G. 3,125 ft.; 1,800 ft. oil in hole 3,180-85 ft.; S.D.
McIlroy Oil Co.'s No. 1 Vallmert, 330 ft. each way out of SE cor. NW, Sec. 140, Blk. 3, I.&G.N. Survey .... Location.
Mid-Continent Pet. Corp.'s No. 1 Laugham, 330 ft. S and W, W 231½ ac. of N 310½ ac., Sec. 1, Blk. B-2, H.&G.N. Sur. ..... Rig.
Operators Royalty Co.'s No. 1 Eddington, 330 ft. ea. way, NE cor. NW, Sec. 34, Blk. B-2, H.&G.N.R.R. Sur. ..... S.G. 2,655-93 ft.; drlg. out plug 2,719 ft.
Oil Operators' No. 1 Bowers, 330 ft. N, 330 ft. E, Sec. 93, Blk. B-2, H.&G.N. Sur. ..... Show oil and gas 2,400-17 ft.; S.O. 3,036-55 ft.; first gas 2,483 ft. increase at 2,500 ft., 2,544 ft. and 2,950 ft.; S.D. 3,090 ft.
Panhandle Ref. Co.'s No. 4 Saunders, 990 ft. N and 330 ft. E of SW cor. E half NE, Sec. 3, Blk 1, A.C.H.&B. Survey ..... Location.
Prairie O. & G. Co.'s No. 2 Langham, 330 ft. S and E, NW cor., W 230.3 ac., of S 310.5 ac., Sec. 1, Blk. B-2, H.&G.N. Sur. ..... Rig.
Phillips Pet. Co.'s No. 1 Wright-Wood, 330 ft. N, 990 ft. E, SW cor. N½ SW, Sec. 13, Blk. 3, I.&G.N.R. R. Sur. ..... Drlg. 1,300 ft.
Phillips Pet. Co.'s No. 2 Wright-Wood, 330 ft. N, 990 ft. W, SE cor. N½ SW, Sec. 13, Blk. 3, I.&G.N. Sur.. Cmtd. 12½-in. csg. 353 ft.
Phillips Pet. Co.'s No. 1 Combs-Worley (J. Fox), 330 ft. each way out of NW cor. NE, Sec. 36, Blk. 3, I.&G.N.R.R. Survey ..... Location.
Prairie Oil & Gas Co.'s No. 1 Worley et al, 330 ft. each way out of NW cor. NW, Sec. 36, Blk. 3, I.&G.N.R.R. Survey ..... Location.
Prairie Oil & Gas Co.'s No. 2 Worley et al, 330 ft. each way out of NE cor. NW, Sec. 36, Blk. 3, I.&G.N.R.R. Survey ..... Location.
Reynolds et als' No. 1 Webb, 330 ft. N, 330 ft. E, NW, Sec. 60, Blk. 25, H.&G.N.R.R. Sur. ..... Drlg. 750 ft.
Rieger & Steckoll's No. 1 Bohr, 330 ft. S and E, Sec. 37, Blk. B-3, H.&G.N. Sur. ..... Drlg. 3,410 ft.
St. Clair Oil Co.'s No. 1 L. S. Stockton, SE cor., Sec. 35, W. R. Lee Sur. ..... Spudded and S.D.
Stover and Shell's No. 1 Saunders, 990 ft. N, 330 ft. E, N 100 ac. of W 149 ac., Sec. 3, B.&B. Sur. ..... 2,000,000 ft. gas 2,670-75 ft; drlg. 2,855 ft.
Southern Expltn. Co.'s No. 1 Noel, 330 ft. S and W, W½ NW, Sec. 138, Blk. 3, I.&G.N.R.R. Sur. ..... Swabbing 10 bbls. hourly 3,178-98 ft.
Sun Oil Co.'s No. 1 Combs-Worley, 330 ft. ea. way, SW cor. SE, Sec. 35, Blk. 3, I.&G.N. Sur. ..... Rig.
The Texas Co.'s No. 1 Bell, 2,310 ft. N, 2,640 ft. W, Sec. 133, Blk. B-2, H.&G.N.R.R. Sur. ..... 1,500,000 ft. gas 2,800-2,910 ft. drlg. 3,300 ft.
The Texas Co.'s No. 15 Saunders, 330 ft. N and W, SE cor. W½ SE, Sec. 4, Blk. 1, A.C.H.&B. Sur. .... S.D. 2,610 ft.
The Texas Co.'s No. 1 Wright, 330 ft. S and W, SE, Sec. 13, Blk. 3, I.&G.N.R.R. Sur. ..... Drlg. 2,495 ft.
Travis & Reiger's No. 1 Mackie, 330 ft. N and E, Sec. 114, Blk. B-2, H.&G.N.R.R. Sur. ..... 16,000,000 ft. gas; T.P. 2,685 ft.; S.D. 3,343 ft.
Tripplehorn Oil Co.'s No. 1 Morse, 330 ft. S and W, SW SE, Sec. 17, Blk. A-9, H.&G.N.R.R. Sur. ..... S.D. 2,808 ft.; S.O. 2,710-24 ft.
Vulcan O. & G. Co.'s No. 1 Carpenter, 330 ft. N and W, W 80 ac., NW, Sec. 25, Blk. 25, H.&G.N.R.R. Sur. ..... T.D. 1,520 ft.; waiting on csg.
Wilcox-Pampa Oil Co.'s No. 13 Combs-Worley, 330 ft. each way out of NE cor. E half, Sec. 37, Blk. 3, I.&G.N. Survey ..... Location.
Wilson et als' No. 1 Heaston, 330 ft. S and W, Sec. 160, Blk. B-2, H.&G.N.R.R. Sur. ..... S.D. 700 ft.
Wright Wilson, trustee's No. 1 Chapman, 175 ft. S and E lines, N½ NW, Sec. 69, Blk. 25, H.&G.N. Sur. .... S.O. 2,685 ft.; S.D. 2,693 ft.

HARTLEY COUNTY

Dana O. & G. Co.'s No. 1 Fritz, C NE, Sec. 81, Blk. 44, H.&T.C.R.R. Sur. ..... Running 6-in. csg. 3,030 ft.

HUTCHINSON COUNTY

Alamosa Oil Co.'s No. 4 Sanford, 210 ft. S, 320 ft. W, NE cor. N 160 ac., S 240 ac., Sec. 85, Blk. 46, H, &T.C. Sur ..... S.O. and wtr. 3,010-11 ft.; S.D. 3,095 ft.
Alexander et als' No. 1 Johnson, 1,709 ft. E, 330 ft. N, N 80 ac., E½, E. T. Tomlinson Sur. ..... Drlg. 1,675 ft.
Barnsdall Oil Co.'s No. 4 Prichard "A," C SW NW, Sec. 3, Blk. 4, D.&S.E. Sur. ..... S.D. 2,876 ft.
Continental Oil Co.'s No. 1 Johnson-E, 330 ft. N and E, SW cor. SE, Sec. 5, Blk. I, B.&B. Sur. ..... Drlg. 2,190 ft.
Danciger O. & R. Co.'s No. 1 Cheatham, 330 ft. N and E, SW SE, Sec. 38, Blk. Y, A.&B. Sur. ..... Drlg. 1,925 ft.
Danciger O. & R. Co.'s No. 3 Moore, 330 ft. S and E, NW W½ SE, Sec. 125, Blk. 4, I.&G.N.R.R. Sur. .... 1,000 ft. oil in hole; T.P. 3,003-20 ft.; S.D. 3,030 ft.
Danciger O. & G. Co.'s No. 4 Moore, 330 ft. N and E, SW cor. W½ SE, Sec. 125, Blk. 4, I.&G.N.R.R. Sur.. Rigging up standard tools; T.D. 2,825 ft.
Dixon Creek Oil Co.'s No. 1 Cheatham, 990 ft. E, 330 ft. S, N½ SE, Sec. 38, Blk. Y ..... Drlg. 2,020 ft.
Dixon Creek Oil Co.'s No. 2 Cheatham, 330 ft. N, 1,650 ft. W, SE cor. N½ SE, Sec. 38, Blk. Y ..... Running 10-in. csg. 875 ft.
Dixon Creek Oil Co.'s No. 1 Johnson Bros., 50 ft. S, 330 ft. W, NE cor. E 80 ac., J. Gammon Sur. ..... Drlg. 1,880 ft.
Gulf Prod. Co.'s No. 1 W. E. Herring, 1,320 ft. N, 1,-395 ft. E, SW cor., Sec. 5, Blk. J, H.&G.N. Sur. .... Drlg. 2,606 ft.; lime.
Gulf Prod. Co.'s No. 1 Herring-A, 990 ft. S, 990 ft. W, NE cor., George Bazon Sur. ..... Drlg. 2,650 ft.
Huey et als' No. 3 Smith et al, 330 ft. N, 660 ft. W, S 40 ac., E 100 ac., SE, Sec. 12, Blk. Y ..... Drlg. by tools 2,702 ft.
Midwest Explin. Co.'s No. 1-B Pitcher, 330 ft. E and S line, W½ SW, Sec. 19, T.C.R.R. Sur. ..... Drlg. 2,795 ft.
Phillips Pet. Co.'s No. 2 Cheatham, 330 ft. S and E, NW cor. SE SE, Sec. 38, Blk. Y ..... Drlg. 2,175 ft.
Phillips Pet. Co.'s No. 1 Johnson-Burl, 330 ft. S and W, NE cor. W 240 ac., N 320 ac., Sec. 4, Blk. 1, B.&B. Sur. ..... Drlg. 1,050 ft.
Phillips Pet. Co.'s No. 1 Johnson-Juanita, 330 ft. N and W, SE cor. W½, Sec. 5, Blk. I, B.&B. Sur. .... Drlg. 2,295 ft.
Phillips Pet. Co.'s No. 1 Johnson-Trammel, 930 ft. N, 330 ft. W, SE cor. W½ NW, Sec. 38, Blk. Y ..... Drlg. 1,987 ft.
Phillips Pet. Co.'s No. 1 Johnson-Mayer, 990 ft. N and 990 ft. W line, NE, Sec. 37, Blk. Y, A.&B. Sur. .... Set 10-in. csg. 1,863 ft.
Phillips Pet. Co.'s No. 1 Johnson-Royal, 330 ft. S and E, NW cor. E½ NW, Sec. 34, Blk. Y ..... Set 10-in. csg. 1,886 ft.
Phillips Pet. Co.'s No. 1 Johnson-Rudy, 330 ft. W, 330 ft. S, SW SW, Sec. 30, Blk. Y, A.&B. Sur. ..... Rebuilding rig 2,130 ft.
Skelly Oil Co.'s No. 1 Byrd, 2,640 ft. E line, 3,960 ft. S line, W 3,094 ac., D. Luce Sur. ..... Drlg. 3,090 ft.
Spurlock et als' No. 1-A Christian, 440 ft. S, 330 ft. W, NE cor. SE SE, Sec. 33, Blk. Y ..... Rebuilding rig 825 ft.
The Texas Co.'s No. 5 Moore, 330 ft. N and W, SE cor. SW, Sec. 125, Blk. 4, I.&G.N.R.R. Sur. ..... Drlg. 541 ft.
Texarado Oil Co.'s No. 2 Sanford, 330 ft. S, 990 ft. W, NE cor. N 80 ac., S 160 ac., Sec. 83, Blk. 46, H.& T.C.R.R. Sur. ..... Drlg. 1,900 ft.

LAMB COUNTY

Graham O. & G. Co. et als' No. 1 Ellwood, CWL, Sec. 9, Blk. T, T. A. Thompson Sur. ..... S.D. 4,408 ft.; fishing.

LIPSCOMB COUNTY

Brown et als' No. 1 Box T Ranch, SW NE, Sec. 612, H.&T.C. Sur. ..... Cleaning out 3,750 ft.
Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... Fishing 4,954 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ..... Small S.O. 1,133-40 ft.; S.D. 4,167 ft.

MOORE COUNTY

Canadian River Gas Co.'s No. 1-C Sneed, 660 ft. N and E, SW, Sec. 46, Blk. 6-T, T.&N.O.R.R. Sur. ... S.D. 2,120 ft.
Fritch O. & G. Co.'s No. 1 Lee Bivins, C N 40 ac., N 160 ac., Sec. 4, Geo. Mahan Sur. ..... 2,000,000 ft. gas 1,550-65 ft.; T.D. 3,212 ft.; S.O. 3,188 ft.; shot 40 qts. from 3,182-3,202 ft.; no results; S.D.
Gulf Prod. Co.'s No. 1 Kilgore, C SW, Sec. 22, Blk. P.Mc., E.L.R.R. Sur. ..... Drlg. 2,805 ft.; red rock; 60,000,-000 ft. gas.
Operators Royalty Co. et als' No. 1 Jones, 330 ft. S line, 330 ft. E line, SW SW, Sec. 164, Blk. 3-B, T.&N.O.R.R. Sur. ..... Drlg. 3,110 ft.; 46,000,000 ft. gas.
Red River Gas Co.'s No. 1 J. M. Shelton, 330 ft. ea. way from SE cor., Sec. 52, Blk. 3, G.&M. Sur. ..... S.D. 2,694 ft.

MOTLEY COUNTY

Explin. Co.'s No. 6 Matador, 330 ft. N line, 330 ft. E line, Sec. 132, Blk. M ..... S.D. 4,011 ft.
Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. ..... S.D. 580 ft.

POTTER COUNTY

Canadian River Gas Co.'s No. 1-N Masterson, 330 ft. E, 1,320 ft. S, Sec. 17, Blk. 3, G.&M.R.R. Sur. ..... Rigging up rotary and S.D.

RANDALL COUNTY

W. A. Patterson's No. 1 Palo Duro, Sec. 60, Blk. K-14 .. S.D. 1,250 ft.

ROBERTS COUNTY

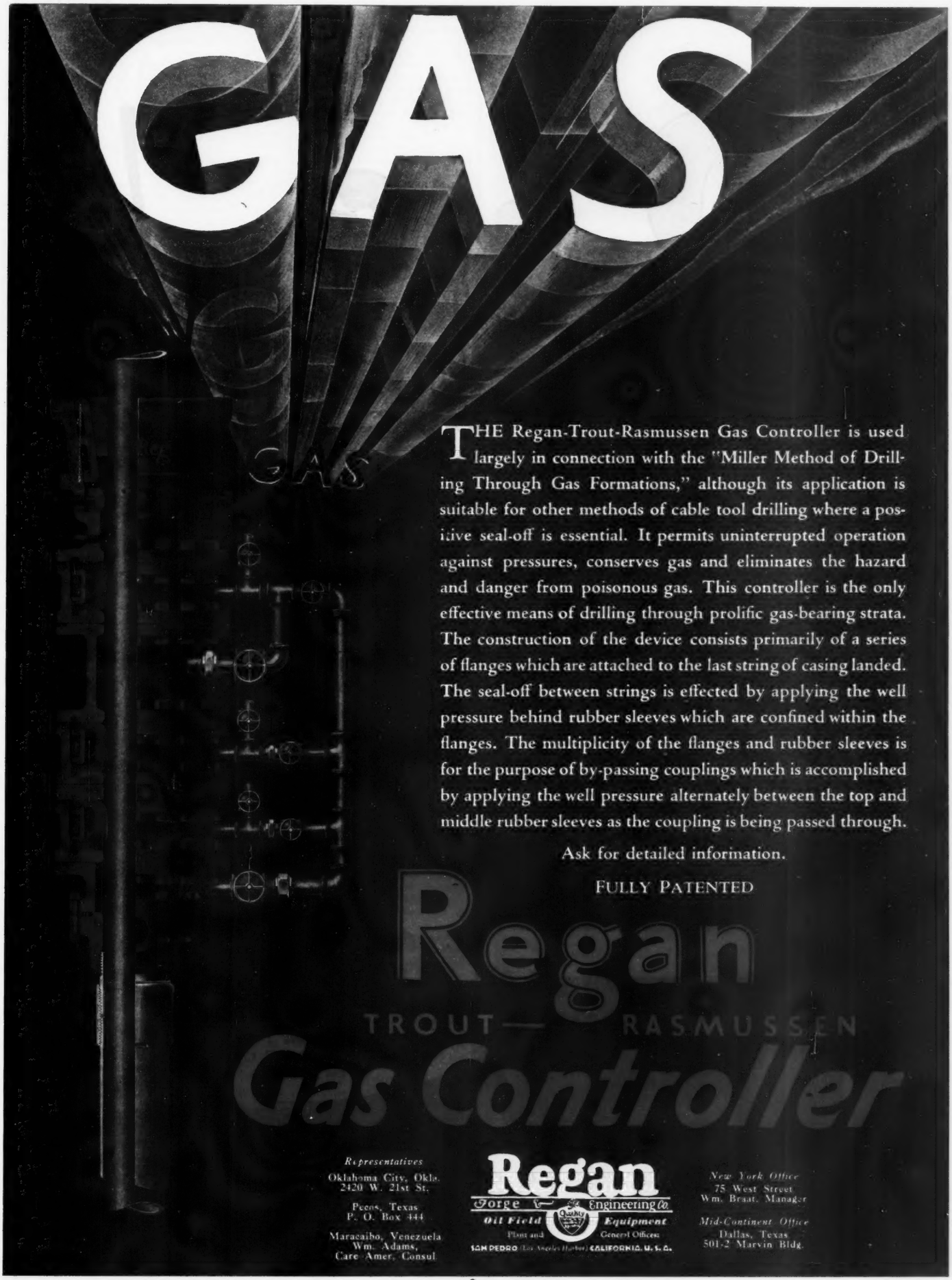
Big Bend Oil Co.'s No. 1 Ledrick, Sec. 7, Blk. A-5 .... Shot 10 qts. 5,270-93 ft.; S.O. 5,-288 ft; S.D. 5,992 ft.

TERRY COUNTY

Atlantic O. P. Co. et als' No. 1 Carlisle, 990 ft. S and E, Sec. 58, Blk. E, E.L.R.R. Sur. ..... Location.

WHEELER COUNTY

Dunaway Bros.,' No. 1 Worley, 330 ft. S and W, NE cor. NW, Sec. 39, Blk. 24, H.&G.N.R.R. Sur. ..... Drlg. 1,400 ft.
Lone Star Gas Co.'s No. 1 Brown, C NW NE, Sec. 53, Blk. 23, H.&G.N.R.R. Sur. ..... Location.
Lone Star Gas Co.'s No. 1 Fuller, center SW NE, Sec. 71, Blk. 17, H.&G.N.R.R. Survey ..... Location.
Lone Star Gas Co.'s No. 2 Hicks (Martin), center NW NE, Sec. 52, Blk. 17, H.&G.N.R.R. Survey ..... Location.
Lone Star Gas Co.'s No. 1 Nickell, center NW NW, Sec. 64, Blk. 17, H.&G.N.R.R. Survey ..... Location.
Lone Star Gas Co.'s No. 1 Wofford, C SE SW, Sec. 68, Blk. 17, H.&T.N.R.R. Survey ..... Location.
Lone Star Gas Co.'s No. 3 Linkey, 330 ft. S and W, NE cor., Sec. 106, Blk. 23, H.&G.N.R.R. Sur. ..... Drlg. 1,850 ft.
Lone Star Gas Co.'s No. 1 Ridinger, C NW NW, Sec. 65, Blk. 17, H.&G.N. Sur. ..... Rig on ground.
Wischkamper et als' No. 2 Brown, C SE NE, Sec. 53, Blk. 23, H.&G.N.R.R. Sur. ..... Drlg. 740 ft.



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Care Amer. Consul

Regan Forge & Engineering Co.
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Plant and General Offices:
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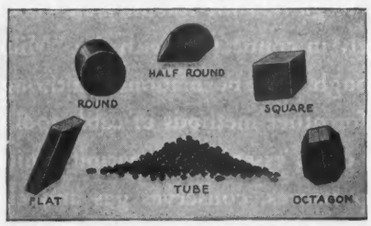

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CENTRAL WEST FIELDS

(Continued from Page 80)

in Harrison County and expect to drill two other tests.

Dubois County—The Hoosier Drilling Co. has a rig up on the Mrs. Henry Langebrake farm, near Zora, and will start a test at once.

Gibson County—The Indiana Southwestern Gas and Utilities Corp., formerly the Indiana Oil & Gas Corp., abandoned its well on the Ben Buck farm in Section 10, Barton Township, at 1,034 feet. Same company is making a deep test on the L. W. Gudgel lease south of Oakland City, in Section 25, Columbia Township. When last heard from it was down 3,180 feet, and still in 6¼-inch casing. It is still drilling on the William Ireland lease in Section 32, Center Township. Same company abandoned No. 2 Mitchell, in Section 33, Center Township, after it was found dry at 1,925 feet.

Hancock County—Charles Titus drilled a small gas well on the M. Overman farm, one-half mile south of Wilkinson.

Huntington County—The Roanoke Oil & Gas Co. has completed lease near Roanoke, and expects to drill a test.

Knox County—The Shell Petroleum Corp. is reported making core tests in the Heine Kramer farm near St. Thomas.

La Grange County—J. W. Hunt will resume drilling in the Clair Shoup well, after being shut down several months.

Lake County—The Dome Oil Co. is down 1,700 feet in its wildcat near Highland, and still drilling. A string of 5-inch casing has been set.

Madison County—The Pendleton Natural Gas Co. got a fair well on the Taylor Brown farm.

Monroe County—The Petroleum Exploration Co. is drilling in three tests in this county. One is on the F. L. Deckard farm, near the Lawrence County line; another is 10 miles east of Bloomington, on land belonging to the State Life Insurance Co. The third is on the Young Heirs lease, near the gas well on the Shirley farm, in Section 7, Benton Township, and is due to reach the Trenton Rock soon.

Morgan County—The Petroleum Exploration Co. has taken leases in the southwestern part of the county.

Pike County—The Newark Tool Co. is planning to drill on the Frank Anderson farm, in Washington Township. The Mahutska Oil Co. is drilling on the Ford-Hill lease, in Section 31, Clay Township. William Bell and others got 30 bbls. initial from the Oakland City sand at 1,314 feet in their second well on the Berkley Hill farm, in Section 31, Madison Township. Lee & Cox are down 1,215 feet in their Charles McAtee No. 2, in Location 146, Clay Township. A third well on the same farm is down 100 feet. Dr. C. C. Taliaferro got the best well in many months on the Mary McAtee No. 3, in Section 12, Clay Township. This started at 225 bbls. from a depth of 1,015 feet, in the Rumble sand. The fourth well on the same farm is down 425 feet. Dan Miller is planning to drill on the Morrison land east of Alford, in Washington Township. L. N. Savage and others got an initial of only 1 bl. from their second well on the Byron Preston lease, in Section 30, same township. F. B. Hillis and others finished a 50-bbl. well on the Nettie Rohrscheit farm, in Section 31, Clay Township. O. L. Diver plugged back the well on the Robert Walton farm, in Section 14, Logan Township, to 1,399 feet, where it made 4 bbls. from the Oakland City sand.

Sullivan County—Unknown parties have spudded in on the John Lynch land near the mouth of Busseron Creek. Riggs & Riggs are intending to test their land a short distance southwest of Shelburn.

Vigo County—About 1,000 acres have been leased just north of Middleton, where a test is to be started by April 7. The Siosi Oil Corp. is drilling on the Goodman farm, just south of Liggett, in Sugar Creek Township. The Ohio Oil Co. is now moving a steel rig to a third location on the Cash Piety farm in the northern part of the Sioso Field. Hamill & Dill are not entirely satisfied with their well on the Ross Prevo farm in Section 32, Prairie Creek Township, and are planning to deepen it to the new deep pay. Siosi Oil Corp.'s William Riggs No. 8, after being plugged back from the Trenton, is now producing from this new pay. It is reported flowing by heads, without having been shot. A good many wells have been off of production since the field was submerged in the freezing backwaters of the Wabash River. These are being pumped as rapidly as the ice can be cleared away from them.

White County—After being shut down during the colder weather at a depth of 100 feet, the Mich-Ohio Oil Co.'s test on the Brenneman farm, Section 1, Monon Township, will soon be going again.

Indiana Production

The following production figures for Indiana for 1929 have been published in a preliminary summary by the Petroleum Economics Division, United States Bureau of Mines:

Month—	Southwestern	Northeastern	Total Indiana
January	83,000	4,000	87,000
February	81,000	4,000	85,000
March	76,000	6,000	82,000
April	76,000	6,000	82,000
May	78,000	6,000	84,000
June	71,000	7,000	78,000
July	71,000	6,000	77,000
August	74,000	6,000	80,000
September	70,000	5,000	75,000
October	77,000	5,000	82,000
November	78,000	5,000	83,000
December	77,000	5,000	82,000
Total, 1929	912,000	65,000	977,000
Total, 1928	963,000	89,000	1,052,000

ILLINOIS

Only two completions were reported from the Illinois Field, one being a purely wildcat venture made by the Texas Federal Loan Co., 890 feet from the south line and 250 feet from the east line of the F. Nigh farm, in Wade Township, Jasper County, which was found dry at a total depth of 2,202 feet, and into the Trenton Lime formation. The second duster was the O. R. Oil & Gas Co.'s test in the southwest corner of the E. Savidge, SW, Section 36, Prairie Township, Crawford County, at a depth of 1,006 feet.

In Petty Township, Lawrence County, the Ohio Oil Co. abandoned No. 7 J. W. Rodrich, SE, Section 26, and the Mahutska Oil Co. did the same with No. 3 W. E. Updike, SW, Section 14.

The No. 5 well of W. L. Ball and others on the H. C. Yelton farm, Section 5, Friendsville Township, Wabash County, was spoiled by a shot. No new completions were reported from the Dupo Field, in Sugar Loaf Township, St. Clair County.

KENTUCKY-TENNESSEE

(Continued from Page 84)

Whittaker Pool is good for 10 bbls., and James C. Ellis and others' No. 3, in the SW cor. of the G. M. Burdette 63 acres, is also a 10-bbl. pumper.

In the Bowling Green Field of Warren County, to the southwest of Bowling Green, S. F. Durbin and others' No. 1 W. H. McGinnis 20 acres, was dry in the shallow sand at 480 feet.

In the Pellville Field of Hancock County, Sam T. McGill and others have shot No. 3 Leo Rosenblott 60 acres, which shows for a light producer.

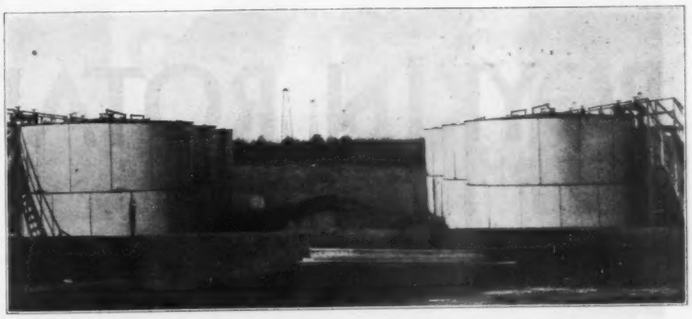
Field Pickups

Total runs made from wells served by the Illinois Pipe Line Co. in western Kentucky during February, 1930, totaled 269,683.31 bbls.

Cumberland Pipe Line Co. runs from Wayne County and eastern Kentucky for February totaled 179,067.13 bbls.

The Missouri-Kansas Pipe Line Co.'s purchase of a franchise for natural and artificial gas for Greenville, in Muhlenberg County, for the sum of $1 and costs of advertising, was confirmed by the city council.

During January the oil production from Daviess County totaled 94,051.33 bbls., according to state reports, of which 62,977.35 bbls. was handled by the Illinois Pipe Line Co., and the Producers Pipe Line Co. pumped 31,073.96 bbls. The State received as a tax on the production the amount of $789.98, and the oil producers received $158,085.20 for their share.



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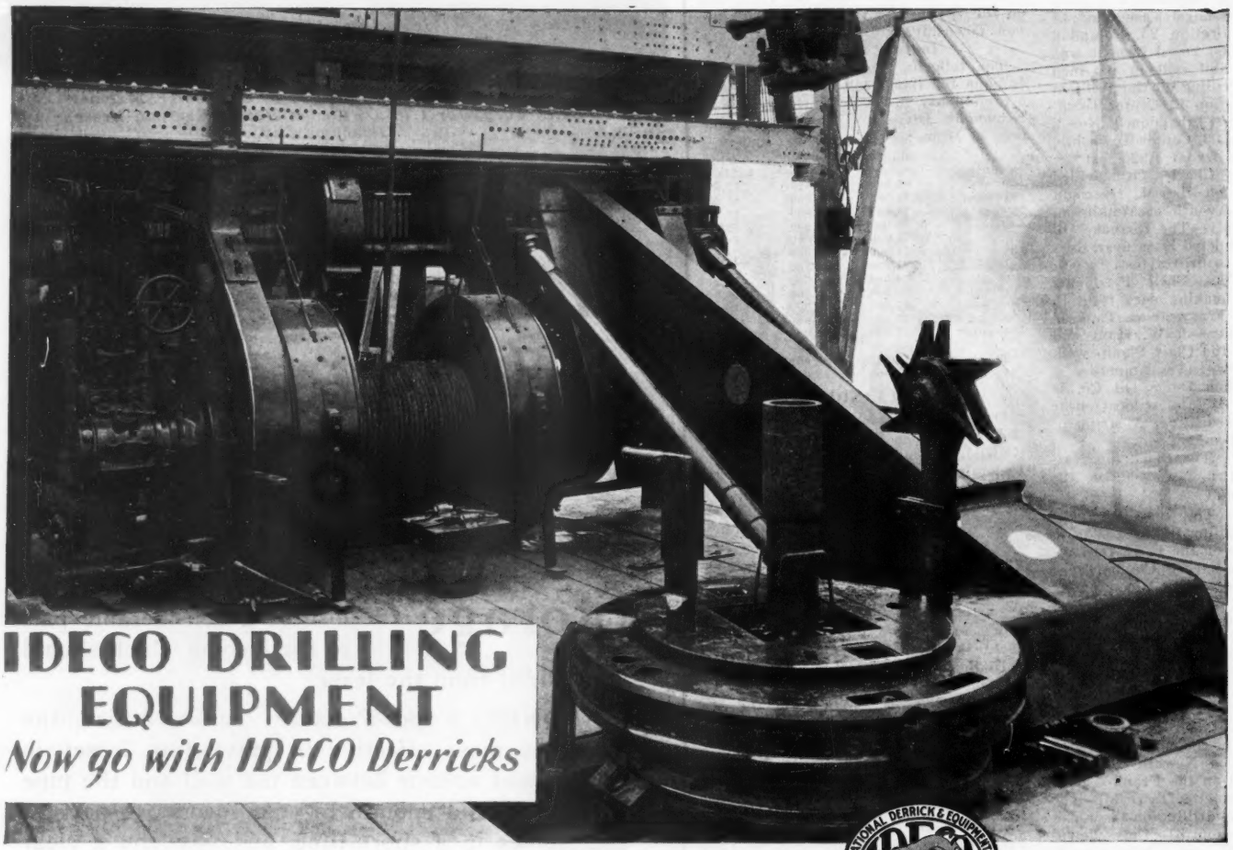

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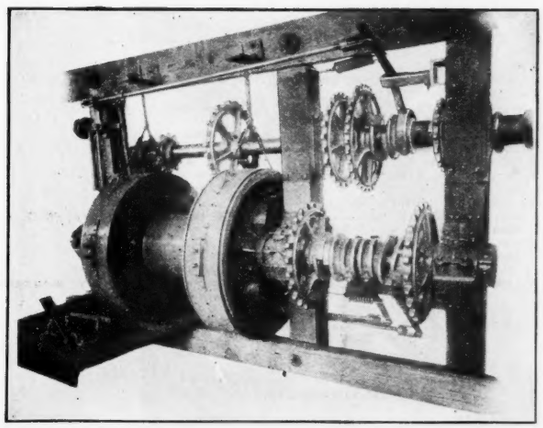
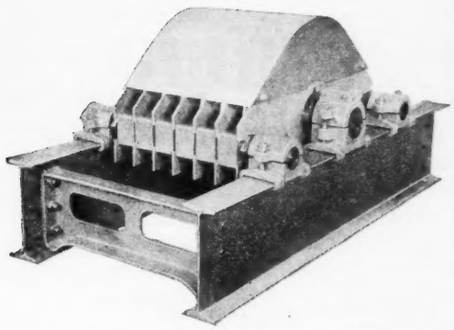
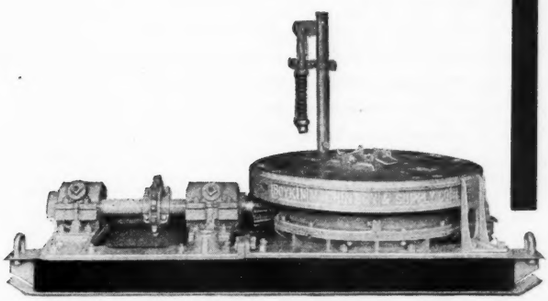


"Big Texan" Rotary Draw Works manufactured by INTERNATIONAL DERRICK & EQUIPMENT CO., Beaumont, Texas. Spool, post castings, sprockets and clutches of Nickel chromium steel.



New type, heavy duty 6-sheave Ideco Crown Block, with end spacers and sheaves of Nickel chromium steel.



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LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 57)

SW, Sec. 18-13-13 ..... Derrick.
R. O. Roy's No. 1-E Farmer, 660 ft. S, 660 ft. W, NE
H. L. Hunt, Inc.'s No. 10 J. W. Peyton, 990 ft. S, 330 ft. E, C, Sec. 25-23-13 ..... Rigging up.
La. Pet. Corp.'s No. 1 Bain, 330 ft. S and W, NE cor. SW NW, Sec. 31-23-11 ..... Began drlg. March 5; cmtd. 10-in. 220 ft.; drlg. 1,000 ft.
La. Pet. Corp.'s No. 2 Bain, 330 ft. S and E, NW cor. SW NW, Sec. 31-23-11 ..... Began drlg. March 8; cmtd. 10-in. 186 ft.; drlg. 500 ft.
Magnolia Pet. Co.'s No. 1 E. C. Dodson, Sec. 16-23-12.. O.W.D.D; arranging to deepen; T.D. 3,085 ft; completed Oct. 15, 1927 28,500,000 ft. of gas.
Magnolia Pet. Co.'s No. 2 Matlock, 330 ft. S and W, NE cor. SE SW, Sec. 25-23-12 ..... Derrick.
Magnolia Pet. Co.'s No. 1 Roberson, Sec. 26-23-12 ..... O.W.D.D; completed Dec. 27, 1927; 33,000,000 ft of gas at 3,059 ft.
Magnolia Pet. Co.'s No. 3 Matlock, 330 ft. N, 330 ft. W, SE cor. SE SW, Sec. 25-23-12 ..... Derrick.
Muslow Oil Co.'s No. 2-A Kilgore, Sec. 31-23-11, (no check) ..... Rig up.
Muslow Oil Co.'s No. 2 Barnett, 1,002 ft. N, 990 ft. W, SE cor., Sec. 25-23-12 ..... D.S. test 2,692 ft.; small show oil; drlg. 2,695 ft.
Muslow Oil Co.'s No. 2-B Kilgore, Sec. 31-23-11 ..... Drlg. 2,552 ft.
Muslow Oil Co.'s No. 3-B Kilgore, Sec. 31-23-11 ..... Drlg. 2,600 ft.
Muslow Oil Co.'s No. 1-C Kilgore, 2,080 ft. N, 1,980 ft. E, SW cor., Sec. 31-23-11 ..... W.O.S.R. 2,500 ft. fluid in hole; T.D. 3,167 ft.
Muslow Oil Co.'s No. 1 Mark Myer, 1,980 ft. N, 330 ft. W, SE cor., Sec. 36-23-12 ..... Arranging to deepen; T.D. 3,088 ft.
Muslow Oil Co.'s No. 2 Peyton, Sec. 30-23-11 ..... Began drlg. March 8; cmtd. 10-in. 241 ft.
Muslow Oil Co.'s No. 3 Peyton, Sec. 30-23-11 ..... Setting 6⅝-in. 3,130 ft.; 8 ft. sand; T.D. 3,145 ft.
Muslow Oil Co.'s No. 1 Floyd, 990 ft. S, 330 ft. W, C, Sec. 25-23-12 ..... Cmtd. 10-in. 245 ft.; drlg. 1,500 ft.
Northwest La. Gas Co.'s No. 5 Bollinger, 252 ft. E, 200 ft. S, NW cor. Lot 7, Sec. 31, in Sec. 38-23-11 ..... Cmtd. 6⅝-in. 3,167 ft; T.D. 3,170 ft.
Nat. Gas Prod. Co.'s No. 2 U. S. Govt., NW cor. SE NW, Sec. 31-23-11 ..... Coring 3,140 ft.
Nat. Gas Prod. Co.'s No. 2 U. S. Govt., NW cor. SE NW, Sec. 31-23-11 ..... Rig up.
Nat. Gas Prod. Co.'s No. 3 U. S. Govt., 1,520 ft. S, 2,580 ft. E, NW cor., Sec. 31-23-11 ..... Location.
Nat. Gas Prod. Co.'s No. 4 U. S. Govt., 2,440 ft. S, 2,580 ft. E, NW cor., Sec. 31-23-11 ..... Location.
Olsen Bros. and Ingall's No. 1 Pine Woods Lbr. Co., SE cor. NW NW, Sec. 25-23-12 ..... Location.
Phillips Pet. Co.'s No. 1 Floyd, 330 ft. S, 330 ft. W, C, Sec. 25-23-12 ..... Rigging up.
Palmer Corp.'s No. 1 Robinson, 660 ft. S, 660 ft. E, NW cor. NW NE, Sec. 26-23-12 ..... W.O.S.R. 2,000 ft. oil in hole; T. D. 3,175 ft.
Phillips Pet. Co.'s No. 1-A Bollinger (formerly Sales & Walker's No. 4 Bolinger), 696 ft. S, 1,120 ft. E, NW cor. SW, Sec. 30-23-11 ..... Perforated 6⅝-in. 3,113-23 ft; 300 ft. oil in hole; W.O.S.R; T.D. 3,247 ft.
Phillips Pet. Co.'s No. 3 Bollinger, 700 ft. E, 265 ft. S, NW cor. SW SW, Sec. 30-23-11 ..... Cmtd. 10-in. 218 ft.; drlg. 1,200 ft.
Phillips Pet. Co.'s No. 4 Bollinger, NW cor. E½, NW SE, Sec. 30-23-11 ..... Derrick.
Phillips Pet. Co.'s No. 5 Bollinger, 390 ft. E, 256 ft. N SW cor., Lot 16, Sec. 30-23-11 ..... Derrick.
Phillips Pet. Co.'s No. 1 Floyd, 330 ft. S, 330 ft. W center, Sec. 25-23-12 ..... Rig up.
The Texas Co.'s No. 2 Peyton, 990 ft. N, 330 ft. W, SE cor., Sec. 25-23-12 ..... Cmtd. 6-in. 3,135 ft.; T.D. 3,140 ft.
The Texas Co.'s No. 4 Peyton, 990 ft. E, 330 ft. N, SW cor., Sec. 30-23-11 ..... Began drlg. March 8; cmtd. 10-in. 374 ft.; drlg. 630 ft.
The Texas Co.'s No. 5 Peyton, 330 ft. N, 330 ft. W SE cor., Sec. 25-23-12 ..... Derrick.
The Texas Co.'s No. 6 Peyton, 330 ft. N, 330 ft. E SW cor., Section 30-23-11 ..... Derrick.
The Texas Co.'s No. 3 Wilkinson, 990 ft. S, 330 ft. E, NW cor., Sec. 31-23-11 ..... Began drlg. March 3; cmtd. 10-in. 367 ft.; drlg. 2,450 ft.
The Texas Co.'s No. 4 Wilkinson, 330 ft. S, 330 ft. E, NW cor., Sec. 31-23-11 ..... Began drlg. March 6; cmtd. 10-in. 375 ft.; drlg. 1,600 ft.
The Texas Co.'s No. 5 Wilkinson, 1,470 ft. S, 150 ft. W NE cor., Sec. 36-23-12 ..... Derrick.
Tippett et als' No. 1 Holmes, 200 ft. S, 200 ft. W, NE cor. NE NW, Sec. 36-23-12 ..... Began drlg. March 6; cmtd. 10-in. 400 ft.; drlg. 1,480 ft.
John Woodley et als' No. 2 L. & A., 990 ft. N, 990 ft. W, SE cor., Sec. 14-23-12 ..... Coring 3,125 ft.
Woodley et als' No. 1 Roberson, 330 ft. N, 330 ft. W, SE cor. SW NE, Sec. 22-23-12 ..... Rig up.

CADDO PARISH—GREENWOOD

Calatex O. & G. Co.'s No. 1 Taylor Trosper, 2,519 ft. S, 1,293 ft. E, CWL, Sec. 7-16-16 ..... Drlg. lime 2,660 ft.

CADDO PARISH—HOSSTON

Bayou State Oil Corp.'s No. 2 Barr, Sec. 30-22-15 (no check) ..... Begin drlg. March 5; cmtd. 10-in. 40 ft., 6-in. 1,064 ft.
Bayou State Oil Corp.'s No. 29 Jolly, 425 ft. W, 775 ft. N, SE cor, NE ..... W.O.S.R. 1,014 ft.

CADDO PARISH—MOORINGSPORT DISTRICT

Falcon Oil Co.'s No. 2 Nunnely, 3,012 ft. N, 3,091 ft. E, SW cor., Sec. 29-20-15 ..... Fishing 6-in. csg.; T.D. 1,985 ft.

CADDO PARISH—OIL CITY

Gulf Ref. Co.'s No. 24-A Levee Board, 200 ft. S, 200 ft. W, NE cor. SW NW, Sec. 34-21-16 ..... Cmtd. 6-in. 1,800 ft.; 400 ft. oil in hole; W.O.S.R.; T.D. 1,836 ft.
Gulf Ref. Co.'s No. 25-A Levee Board, 1,520 ft. S, 200 ft. E NW cor., Sec. 34-21-16 ..... Location.
H. M. Matson's No. 1 U. S. Govt., 900 ft. E, 400 ft. S, NW cor. ..... Cmtd. 6-in. 2,255 ft.; drlg. 2,288 ft.
The Texas Co.'s No. 72 Levee Board, 725 ft. N, 210 ft. E, SW cor. SE, Sec. 27-21-6 ..... Cmtd. 8-in.; drlg. 1,800 ft.
The Texas Co.'s No. 73 Levee Board, 1,642 ft. E, 780 ft. N, SW cor. SW SE, Sec. 27-21-16 ..... Location.

PINE ISLAND

Shreveport Oil Corp.'s No. 4 Hicks, Sec. 32-19-15 ..... Cmtd. 6-in. 2,012 ft.

LA SALLE PARISH—URANIA

Ark. Fuel Oil Co.'s No. 5 Urania, 200 ft. S, 200 ft. E, NW cor. NE SE, Sec. 24-10-1e ..... Drlg. lime 5,000 ft.
Gulf States Gas Co.'s No. 1 Urania, 250 ft. W, 150 ft. S, NE cor., Sec. 1-10-1e ..... S.D. 1,000 ft.
Hope Oil Co.'s No. 5 Urania, 660 ft. E, 150 ft. S, NW cor. SW SW, Sec. 19-10-2e ..... Derrick.
Kinney, Hardtner & Randall's No. 1 Kinney, SW SW, Sec. 7-10-2e ..... S.D. 1,570 ft.

MOREHOUSE PARISH

Bahan & Bahan's No. 3 Feazel, 990 ft. S, 990 ft. W, NE cor, Sec. 3-20-4 ..... Cmtd. 6-in. 2,088 ft.
Bahan & Bahan's No. 4 Feazel, 900 ft. W, 330 ft. S, NE cor., Sec. 3-20-4 ..... Location.
J. S. Herkness' No. 12 Bowles, 3,392 ft. E, 3,300 ft. S, NW cor., Sec. 18-20-5 ..... S.D.; junked; T.D. 2,737 ft.
La. G. & F. Co.'s No. 26 Crossett, 645 ft. E, 574 ft. S, NW cor. Lot 9, Sec. 33-21-5 ..... Location.
Magnolia Pet. Co.'s No. 8 U. S. Govt., 310 ft. S, 410 ft. E, NW cor., Lot 4, Sec. 33-21-5 ..... Cmtd. 15½-in. 204 ft.
Nat. Gas Prod. Co.'s No. 25 Crosset Lbr. Co., 1,444 ft. S, 793 ft. W, NE cor. NW, Sec. 29-21-5 ..... Cmtd. 5-in. 2,340 ft.
J. A. Noe et als' No. 1 Wright, 694 ft. N, 393 ft. W, C, Sec. 27-20-4 ..... Cmtd. 6-in. 2,070 ft.
Southern Carbon Co.'s No. 14 Tensas, 660 ft. N, 660 ft. E, SW cor. NW, Sec. 34-21-4 ..... S.D. on account high wtr; T.D. 2,081 ft.

OUACHITA PARISH

Chauvin Gas Co.'s No. 4 Slagle Johnson, 647 ft. W, 2,803 ft. S, NE cor., Sec. 47-18-4 ..... Began drlg. March 5; cmtd. 12½-in. 200 ft.; drlg. 350 ft.
Hope Prod. Co.'s No. 2 Fairbanks, 1,876 ft. E, 628 ft. N, SW cor. SE, Sec. 25-20-4 ..... Location.
Hope Prod. Co.'s No. 3 Fairbanks, 1,876 ft. E, 628 ft. S, NW cor. NE, Sec. 36-20-4 ..... Drlg. 1,660 ft.
G. E. Jordan's No. 1 Anding, NW NE, Sec. 18-18-15 .... Waiting cmt. to set 2,234-2,480 ft.
Jordan Drlg. Co.'s No. 6 Cole, 1,596 ft. W, 2,388 ft. N, SE cor., Sec. 49, in Sec. 80-18-4 ..... Rigging up.
Jordan Drlg. Co.'s No. 2 Pereboom, 1,207 ft. W, 264 ft. S, C, Sec. 9-18-4 ..... Location.
Jordan Drlg. Co.'s No. 1 School, 216 ft. S, 244 ft. W, NE cor. NW, Sec. 16-18-4 ..... Location.
La. Gas & Fuel Co.'s No. 1 Beard, Sec. 46-18-4 ..... Cmtd. 6-in. 2,143 ft.
Magnolia Pet. Co.'s No. 2 fee 401, 660 ft. S, 660 ft. E, NW cor., Sec. 2-18-3 ..... Derrick.
Sho-Van Gas Products Co.'s No. 3 W. Va., 1,980 ft. S and W, NE cor., Sec. 8-18-4 ..... Cmtd. 6-in. 2,145 ft.
Sho-Van Gas Products Co.'s No. 4 W. Va., 1,078 ft. N, 294 ft. W, NE cor., Sec. 49, in Sec. 7 ..... Rig up.
Union Gas Products Co.'s No. 1 Hare, 660 ft. S, 660 ft. W, NE cor. NW, Sec. 22-19-5 ..... D.S. test 2,565 ft; dry; W.O.
United Oil & Nat. Gas Products Co. of La.'s No. 5 Guthrie, 6,396 ft. N, 6,022 ft. W, cor. Secs. 49, 26, and 25, Sec. 49-20-5 ..... Derrick.
United Carbon Co.'s No. 2 Puckett, 660 ft. N, 660 ft. E, SW cor. SW, Sec. 15-19-5 ..... D.S. test 2,538 ft. dry; arranging to deepen.
United Carbon Co.'s No. 4 Spade, 774 ft. S, 2,081 ft. E, NW cor., Sec. 6-18-4 ..... S.D. 2,040 ft.
United Carbon Co.'s No. 6 Spade, 1,180 ft. S, 140 ft. E, NW cor., Sec. 27-19-4 ..... Location.
United O. & N. G. Co.'s No. 2 Cole, 660 ft. S, 594 ft. E, C, Sec. 26-20-4 ..... Derrick.

RICHLAND PARISH

Ark.-La. P. L. Co.'s No. 3-B E. A. and F. B. Sartor, 300 ft. N, 330 ft. E, SW cor., Sec. 24-16-5 ..... Drlg. lime 1,940 ft.
W. C. Feazel's No. 1 R. B. Simon, 2,406 ft. W, 2,020 ft. S, NE cor., Sec. 11-16-6 ..... Rig up.
International Gas Products Co.'s No. 1 Minnie LaGrone, 769 ft. N, 858 ft. E, SW cor., Sec. 7-16-7 ... Location.
La. G. & F. Co.'s No. 1 Chapman, 2,497 ft. E, 1,980 ft. S, NW cor., Sec. 36-16-6 ..... Set 6-in. 2,300 ft.
La. G. & F. Co.'s No. 1-A Mulhein, 1,731 ft. N, 2,242 ft. E SW cor. NW, Sec. 32-17-6 ..... Began drlg. March 1; cmtd. 12½-in. 188 ft.
La. G. & F. Co.'s No. 2-C F. B. Sartor, 750 ft. N, 945 ft. E, C, Sec. 20-16-6 ..... Location.
Nat. Gas Products Co.'s No. 1-C Sartor, 536 ft. N, 1,333 ft. E, SW cor. NW, Sec. 21-16-6 ..... Drlg. 2,265 ft.
Palmer Corp.'s No. 1 B. F. Chapman, 3,300 ft. S, 1,330 ft. W, NE cor., Sec. 35-16-6 ..... Derrick.
Palmer Corp.'s No. 1-A Earl, Sec. 2-16-6 ..... Setting 4½-in. csg. with packer 2,500 ft.
Southern Carbon Co.'s No. 1 Hale, 660 ft. N, 760 ft. W, SE cor., Sec. 16-16-6 ..... Milling out liner; T.D. 2,460 ft.
Southern Carbon Co.'s No. 1 Lindow, 3,300 ft. W, 1,320 ft. S, NE cor., Sec. 16-16-6 ..... Began drlg. March 5; cmtd. 12½-in. 188 ft.; 8-in. 845 ft.
Southern Carbon Co.'s No. 1 McCoy, 1,980 ft. E, 3,300 ft. S, NE cor., Sec. 16-16-6 ..... Cmtd. 6-in 2,280 ft.
Southern Carbon Co.'s No. 1 W. E. Landers, 1,980 ft. N, 1,220 ft. E, SW cor., Sec. 10-16-6 ..... Derrick.
Southern Carbon Co.'s No. 1 L. S. Mulhern, 1,016 ft. W, 200 ft. S, NE cor. NW, Sec. 19-16-6 ..... Derrick.
United Carbon Co.'s No. 1 W. M. Hallock, 1,980 ft. N, 660 ft. W, SE cor., Sec. 2-16-6 ..... Derrick.
United Carbon Co.'s No. 2 Mulhein, 660 ft. S, 750 ft. E NW cor. NW, Sec. 30-16-6 ..... Derrick.
United Carbon Co.'s No. 1 D. R. Sartor, 3,341 ft. W, 3,960 ft. S, NE cor., Sec. 11-16-6 ..... Cmtd. 6-in. 2,280 ft.

SABINE PARISH—PLEASANT HILL

Ark. Fuel Oil Co.'s No. 4 Horne, 370 ft. S, 450 ft. W, NE cor. SW, Sec. 33-10-12 ..... Cmtd. 6⅝-in. 3,125 ft.
Ark. Fuel Oil Co.'s No. 1 Nunn, 330 ft. N, 330 ft. E, C, Sec. 32-8-12 ..... Drlg. 1,500 ft.
Hatcher et als' No. 1 Moore heirs, 300 ft. N, 300 ft. E, C, Sec. 32-10-12 ..... Derrick.
Magnolia Pet. Co.'s No. 2 McLeroy, 230 ft. S, 200 ft. W, NE cor. W½ SE SW, Sec. 33-10-12 ..... Drlg. 2,913 ft.

SABINE PARISH—ZWOLLE

Air Lift Oil Co. and Root Refineries, Inc.'s No. 1 Leone, 150 ft. S, 150 ft. W, NE cor. S½ SE SW, Sec. 32-8-12 ..... Rig up.
Benedum & Trees Oil Co.'s No. 3 Bowman-Hicks, 330 ft. S, 330 ft. W, NE cor. SE, Sec. 34-8-12 ..... Cored chalk showing oil 2,350-57 ft; setting 6-in. 2,334 ft.
Benedum & Trees Oil Co.'s No. 4 Bowman-Hicks, 330 ft. N, 330 ft. W, C, Sec. 34-8-12 ..... Derrick.
Benedum & Trees Oil Co.'s No. 5 Bowman-Hicks, 900 ft. S, 1,400 ft. W, C, Sec. 34-8-12 ..... Coring 2,305 ft.
Benedum & Trees' No. 6 Bowman-Hicks, 330 ft. N, 330 ft. E, SW cor. SE, Sec. 33-8-12 ..... Cmtd. 12½-in. 110 ft.; drlg. 770 ft.
Benedum & Trees Oil Co.'s (was R. L. Gay, trustee's) No. 2-A Bowman-Hicks Lbr. Co., 200 ft. S, 200 ft. W, NE cor. NE NW ..... 200 ft. oil in hole; T.D. 2,535 ft.; arranging to deepen.
Benedum & Trees' No. 1 Sabine Lbr., 330 ft. N and E, C, Sec. 34-8-12 ..... Drlg. 1,370 ft.
Benedum & Trees' No. 7 Bowman-Hicks, 330 ft. S and W, NE cor. NW, Sec. 34-7-12 ..... Began drlg. March 5; cmtd. 12½-in. 110 ft.; drlg. 775 ft.
G. H. Broderick's No. 1 Bolin, Sec. 31-8-12 (Zwolle Townsite) ..... Rig up.
Broderick & Calvert's No. 1 Sabine Lbr. Co., 150 ft. N, 150 ft. W, SE cor. SE SW, Sec. 31-8-12 (Zwolle Townsite) ..... Derrick.
Joe Burnham et als' No. 1 Bolin, 200 ft. N, 408 ft. E, SW cor. SW NE, Sec. 31-8-12 ..... Derrick.
Davis & Tyson's No. 1 Neville-Roberts, 300 ft. N, 275 ft. W SE cor. NW SW, Sec. 31-8-12 (Zwolle Townsite).. Rigging up.
Dixie Oil Co.'s No. 1 Nunn, 330 ft. N, 85 ft. W, C, Sec. 32-8-12 ..... Began drlg. March 10; cmtd. 10-in. 98 ft.
Glassell & Merren's No. 1 Thomas, Lot 13, Blk. 3 (Zwolle Twp.), Sec. 31-8-12 ..... Began drlg. March 10; cmtd. 10-in 101 ft.
W. G. Gray's No. 1 Bolin, Sec. 31-8-12 ..... Tested dry. 2,215 ft; arranging to deepen with cable tools.
W. G. Gray, trustee's No. 1 Knowlton, 200 ft. S, 330 ft. W, NE cor. NW NE, Sec. 6-7-12 ..... Cmtd. 10-in. 77 ft.; drlg. 1,335 ft.

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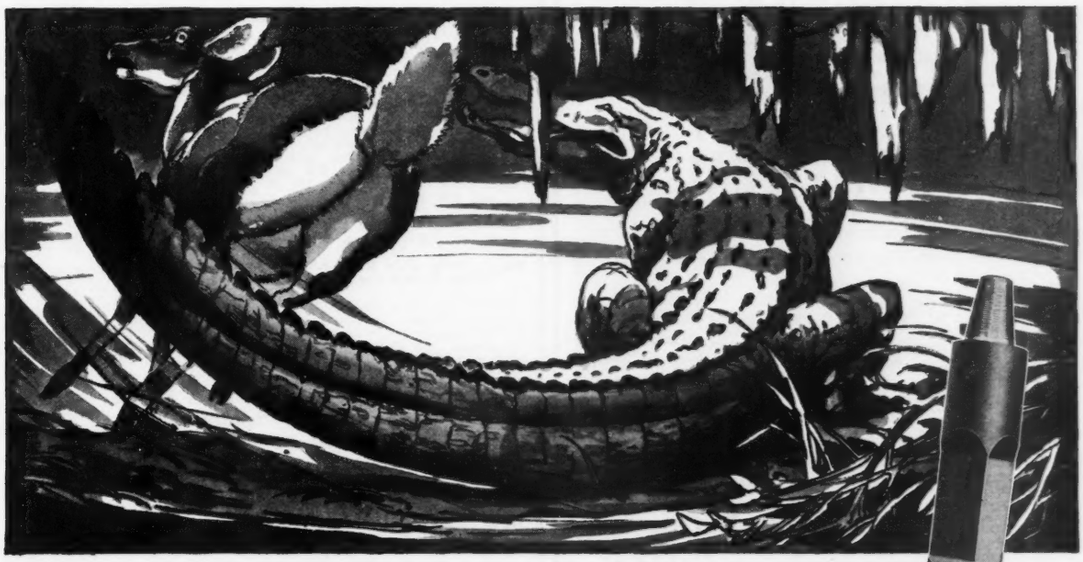

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The Oil and Gas Journal
Classified Wants Department

G. A. Henshaw et als' No. 1-A Sabine Lbr. Co., 200 ft. N, 760 ft. E, SW cor. SE NE, Sec. 31-8-12 ..... Rig up.
G. A. Henshaw et als' No. 2-A Sabine Lbr. Co., 200 ft. N and E, SW cor. SE NE, Sec. 31-8-12 ..... Cmtd. 6-in. 2,176 ft.
G. A. Henshaw et als' No. 3-A Sabine Lbr. Co., 766 ft. N, 200 ft. E, SW cor. SE NE, Sec. 31-8-12 ..... Location.
G. A. Henshaw et als' No. 1-B Sabine Lbr. Co., 150 ft. S and E, C, Sec. 31-8-12 ..... Begin drlg. March 10; cmtd. 10-in. 97 ft.
C. L. Jett, trustee's No. 1 Jones, 150 ft. C, Sec. 31-8-12 .. Began drlg. Mar. 3; cmtd. 10-in. 100 ft.
Herbert Oil Co.'s No. 1 Noble, 750 ft. S, 1,250 ft. E, NW cor. SW, Sec. 31-8-12 ..... Derrick.
F. M. Hood's No. 1 Winston, 460 ft. S, 290 ft. E NW cor., Sec. 31-8-12 ..... Derrick.
Lide et als' No. 2 Sabine Lbr. Co., 330 ft. S, 330 ft. W, NE cor. NW SE, Sec. 31-8-12 ..... 1,200 oil in hole; set 2-in. tubing and packer; would not flow; T.D. 2,224 ft.
Lloyd Oil Corp.'s No. 1 Barnett, Sec. 31-8-12 (Zwolle Townsite) ..... Rig up.
V. M. Miller's No. 1 Colquitt, 300 ft. S, 230 ft. W, NE cor. SE, Sec. 31-8-12 ..... Setting 2½-in. tubing and packer; T.D. 194 ft.
O'Brien Bros.' No. 1 Colquitt, 330 ft. S and E, NW cor. SW, Sec. 32-8-12 ..... Drlg. 2,110 ft.
Ohio Oil Co.'s No. 3 Bowman-Hicks, 330 ft. S and W, NE cor. SE SW, Sec. 33-8-12 ..... Drlg. 1,850 ft.
Ohio Oil Co.'s No. 4 Bowman-Hicks, 330 ft. N and E, SW cor. NW SW, Sec. 35-8-12 ..... Drlg. 1,750 ft.
Olsen Bros.' No. 1 Keeler, SW cor. SW SE, Sec. 27-8-12 .. W.O.S.R.
Olsen Bros.' No. 1 Leone, 150 ft. N, 250 ft. E, SW cor. SW NW, Sec. 32-8-12 ..... Lost returns 2,550-75 ft.; cmtd. 6⅝-in. 2,176 ft.
Ruston Drlg. Co.'s No. 1 Bowman-Hicks, 330 ft. S, 330 ft. W, NE cor., Sec. 4-7-12 ..... 400 ft. oil in hole, swabbing; T. D. 2,640 ft.
Ruston Drlg. Co.'s No. 1-A Bowman-Hicks, 330 ft. S, 330 ft. E, NW cor. SW SW, Sec. 35-8-12 ..... Began drlg. March 7; cmtd. 10-in. 98 ft.; drlg. 1,050 ft.
Ruston Drlg. Co.'s No. 2-A Bowman-Hicks Lumber Co., Sec. 35-8-12 ..... Derrick.
Sabine Lumber Co.'s No. 1 Fee, 150 ft. N, 150 ft. W center, Sec. 31-8-12 ..... Rig up.
Sabine O. & G. Co.'s No. 1 Anderson, 200 ft. N, 200 ft. E, SW cor. SW NW, Sec. 19-18-13 ..... Tested S.W. 2,603 ft; cmtng. bottom.
C. E. Simmons' No. 1 Bolin, 116 ft. E, 126 ft. N, C, Sec. 31-8-12 ..... Begin drlg. March 7; cmtd. 10-in. 98 ft.; drlg. 1,420 ft.
C. E. Simmons' No. 1 Leach, 435 ft. W, 113 ft. N SE cor. SW NW ..... Location.
W. S. Smith et als' No. 1 Colquitt (Zwolle Townsite), 500 ft. S, 480 ft. E NW cor. SW NE, Sec. 31-8-12 ... Derrick.
W. S. Smith et al's No. 1 Henderson, 200 ft. S, 300 ft. E NW cor. SE SE, Sec. 31-8-12 ..... Derrick.
W. S. Smith et als' No. 1 Williams (Zwolle Townsite), 804 ft. N, 40 ft. W SE cor. SW NE, Sec. 31-8-12 ... Rig up.
Standard Oil Co.'s No. 1 L. N. Nunn, 990 ft. S, 320 ft. E, C, Sec. 32-8-12 ..... Cmtd. 10-in. 102 ft.; drlg. 1,529 ft.
Stovall Drlg. Co.'s No. 1 Lefkovitz, 247 ft. N, 250 ft. W, SE cor. N¾ SE NW, Sec. 33-8-12 ..... Tested dry 2,391 ft. and 2,431 ft.; coring 2,462 ft.
A. H. Tarver's No. 1 Sabine State Bank, 250 ft. N, 250 ft. W, C, Sec. 27-8-12 ..... 250 ft. oil in hole, bailing; T.D. 2,668 ft.

UNION PARISH

United Carbon Co.'s No. 1 McInnis, 660 ft. N and E, SW cor. SE, Sec. 19-20-4e ..... Drlg. 1,700 ft.

WEBSTER PARISH—COTTON VALLEY

Standard Oil Co.'s No. 1-B Crichton, 660 ft. S, 660 ft. E, NW cor., Sec. 33-21-10 ..... Drlg. anhydrite 4,650 ft.

WEBSTER PARISH—SAREPTA AND SHONGALOO

Bateman et als' No. 3 Womble, 200 ft. S, 660 ft. E, NW cor. NW SW, Sec. 1-22-11 ..... Cmtd. 6-in. 2,698 ft.
Donohoe O. & G. Co.'s No. 1-B W. B. Roseberry, 250 ft. S, 250 ft. E, C, Sec. 19-23-9 ..... Rig moved; hole abd. 104 ft.
Pat Hudson's No. 1 B. L. Slack, 330 ft. W, 330 ft. N, SE cor. NW, Sec. 36-23-11 ..... Cmtd. 6-in. 2,680 ft.; 5 ft. sand; T.D. 2,723 ft.
Liggett et als' No. 1 Slack, 150 ft. N, 366 ft. W, SE cor. SW SE, Sec. 36-23-11 ..... Rig up.
Magnolia Pet. Co.'s No. 2 Denman, 100 ft. N, 160 ft. W, SE cor. NE NW, Sec. 1-22-11 ..... W.O.S.R; T.D. 2,749 ft.
Merritt & Merritt's No. 1 Boucher (no check), SE SE, Sec. 17-23-11 ..... Drlg. 2,600 ft.
Sarepta Oil Co.'s No. 1 L. S. Gardner, 300 ft. S, 300 ft. W, C, Sec. 1-22-11 ..... W.O.S.R; 600 ft. fluid; T.D. 2,719 ft.

ARKANSAS

JOHNSON COUNTY—CLARKSVILLE

Ark. La. P. L. Co.'s No. 1 Patterson, 1,020 ft. S, 2,570 ft. E, NW cor., Sec. 14-10-24 ..... Drlg. hard sand 2,712 ft.

NEVADA COUNTY

Roy Davis et als' No. 1 Chas. Henry, 1,120 ft. N, 1,120 ft. W, SE cor., Sec. 10-12-20 ..... Rig up.
C. F. Steele's No. 1 E. W. Groves, Sec. 21-14-20 ..... Shut down.

OUACHITA COUNTY—MOUNT HOLLY DISTRICT

McDonald Bros.' No. 2 Wilson, 700 ft. S, 275 ft. W, NE cor. NW SW, Sec. 25-15-18 ..... Drlg. lime 1,875 ft.

OUACHITA COUNTY—SMACKOVER

Southern Producing Co.'s No. 3-A Watts, 700 ft. E, 150 ft. N, SW cor. SE SW, Sec. 27-15-15 ..... 200 ft. fluid in hole; W.O.S.R. T.D. 2,052 ft.
J. D. Wingfield's No. 1 Martin, SW cor., Sec. 26-15-15 .. Set 6⅝-in. 2,085 ft; tested little oil and S.W; W.O; T.D. 2,115 ft.

OUACHITA COUNTY—STEPHENS

Magnolia Pet. Co.'s No. 1 Grayson, C, Lot 30, NE SE, Sec. 21-15-19 ..... W.O.S.R; 800 ft. fluid; T.D. 1,478 ft.
Magnolia Pet. Co.'s No. 2 Grayson, 150 ft. N, 200 ft. W, SE cor. NE, Sec. 21-15-19 ..... Cmtd. 8⅛-in. 1,478 ft.; T.D. 1,480 ft.

UNION COUNTY—CHAMPAGNOLLE

O. W. Estes' No. 1 Bates, 200 ft. N, 200 ft. E, SW cor., Sec. 13-17-14 ..... Derrick.

UNION COUNTY—EL DORADO

H. L. Hunt's No. 6 Pratt, 150 ft. N, 330 ft. E, SW cor. NE NE, Sec. 7-18-15 ..... Running sand pump; T.D. 2,214 ft.
H. L. Hunt's No. 1 Norris (formerly reported Ark. Drlg. Co.'s No. 1 Norris), Sec. 17-18-12 ..... Abd. S.W. 3,400 ft.; arranging to deepen.
Malloy & Co.'s No. 4 Goodwin, 300 ft. N, 300 ft. E, SW cor. NE NE, Sec. 36-17-16 ..... Cmtd. 6⅝-in. 2,186 ft.
Malloy & Co.'s No. 1 Murphy, Sec. 1-18-16 ..... Rig up; W.V.
Malloy & Co.'s No. 3 Robertson, NE cor. S½ SW NE, Sec. 6-18-15 ..... Location.
Rice et als' No. 1 W. Ralty, 150 ft. S, 150 ft. E, NW cor. SW, Sec. 7-17-15 ..... Spudded July 18; cmtd. 10-in. at 92 ft.
Weisinger & Ball's No. 1 Rogers, 1,014 ft. N, 150 ft. E. SW cor. E½ SW SE, Sec. 21-17-15 ..... Cmtd. off split joint csg. 300 ft.; T.D. 2,170 ft.

UNION COUNTY—SMACKOVER

E. L. Chapman's No. 2 Bradley, 330 ft. N, 330 ft. E, SW cor. Lot 3, NW, Sec. 2-16-16 ..... 500 ft. fluid in hole; W.O.S.R.; T.D. 2,028 ft.

E. L. Chapman's No. 1 Epps, 330 ft. S, 330 ft. W NE cor. SE NE, Lot 7, Sec. 3-16-16 ..... Rig up.
Lion Oil Ref. Co.'s No. 1 James, CWL, Lot 2, NW, Sec. 6-16-15 ..... T.A. 2,018 ft.

EAST TEXAS
PANOLA COUNTY

Ark.-La. P. L. Co.'s No. 11 Werner, 1,850 ft. S, 1,052 ft. W, NE cor. E. F. Mitcheson Sur. ..... D.S. test 3,209 ft. dry; drlg. 3,215 ft.
Bahan & Bahan's No. 1 Tom Hill, 150 ft. N, 2,315 ft. E, SW cor. E. F. Mitcheson Sur. ..... Began drlg. March 6; cmtd. 10-in. 100 ft.; drlg. 1,680 ft.
Calatex O. & G. Co.'s No. 3 Caldwell, 243 ft. S, 1,034 ft. W, SE cor. John Womack Sur., in Jas. Shadoin Sur. ..... S.D; W.O. 1,072 ft.
Magnolia Pet. Co.'s No. 2 G. C. Tiller, Jane Thorpe Sur. ..... Small show gas on D.S. test; arranging to deepen; T. D. 3,525 ft.
Magnolia Pet. Co.'s No. 6 G. C. Tiller, 393 ft. S, 1,990 ft. E, NW cor. Jane Thorpe Sur. ..... Plugged back from 3,425 to 2,380 ft; waiting cmt. to set.
Nat. Gas Prod. Co.'s No. 8 Roquemore, B. C. Jordan Sur. ..... Drlg. 4,500 ft.
D. Thomason's No. 5 J. M. Trosper, 4,200 ft. N, 335 ft. W, SE cor. Jane Thorpe Sur. ..... Drlg. chalk 1,700 ft.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 57)

R. O. Roy's No. 1-B Farmer, 660 ft. S, 660 ft. E, NE cor. NW, Sec. 5-13-13 ..... Bailed down 1,800 ft.; small show gas; bailing; T.D. 2,875 ft.

FRANKLIN PARISH

Davis et als' No. 1 Moore, 600 ft. W, 200 ft. S, NE cor., Sec. 12-11-6 ..... S.D. 1,430 ft.
Evansville Inv. Co.'s No. 1 W. B. Welch, 945 ft. E, 511 ft. N, SW cor., Sec. 2-14-8 ..... S.D. 3,030 ft.
Franklin O. & G. Co.'s No. 1 T. J. O'Brien, 300 ft. N, 300 ft. E, SW cor. NW, Sec. 17-15-9 ..... Drlg. 2,084 ft.

NATCHITOCHES PARISH

S. D. McDaniel's No. 2 Clark & Morse, 800 ft. E, 350 ft. N, C. Sec. 23-5-6 ..... Tested 1,000,000 ft. gas and S.W. 3 ft; S.D. for orders; T.D. 3,536 ft.
Robeline O. & G. Co.'s No. 1 Winn, 558 ft. N, 348 ft. E, SW cor. SE, Sec. 7-8-9 ..... S.D. 1,600 ft.

OUACHITA PARISH

J. L. Bullock, trustee's No. 1 W. Va. Lbr. Co., N½ NE, Sec. 25-18-5 ..... S.D. account of high wtr; T.D. 3,700 ft.

RAPIDES PARISH

Ayers Bros.' No. 1 Wickliff, 2,790 ft. N, 150 ft. E, SW cor., Sec. 9-5n-2e ..... S.D. for fuel 2,650 ft.

RED RIVER PARISH

W. D. Ball's No. 1 Krumholtz, 660 ft. S, 660 ft. E, NW cor., Sec. 32-14-10 ..... Sidetracking junk; T.D. 1,640 ft.
LeGrande et als' No. 1 Sample, Sec. 11-14-11 ..... Rigging up.

RICHLAND PARISH

Austin & McDonald's No. 1 Hunt, 594 ft. N, 660 ft. E, SW cor., Sec. 13-17-5 ..... Derrick.
Austin & McDonald's No. 2 Millsaps, SW cor., Sec. 17-17-6 ..... Waiting orders; T.D. 3,679 ft.
Austin & McDonald's No. 3 Millsaps, 1,980 ft. S, 660 ft. E, NW cor., Sec. 16-17-6 ..... Tested S.W; W.O. 2,477 ft.
Austin & McDonald's No. 4 Millsaps, NW cor., Sec. 16-17-6 ..... Location.
Austin & McDonald's No. 5 Millsaps, 2,640 ft. N, 1,320 ft. W, SE cor., Sec. 8-17-6 ..... Derrick.
W. C. Feazel's No. 1 Landrum, 620 ft. N, 4,573 ft. E, SW cor., Sec. 6-16-7 ..... Derrick.
Industrial Gas Co.'s No. 1 A. T. Davidson, 1,350 ft. S, 916 ft. E, NW cor., Sec. 6-16-7 ..... S.D; W.O. 2,762 ft.
Industrial Gas Co.'s No. 1 Ruston Drlg. Co., 1,930 ft. S, 1,955 ft. E, NW cor., Sec. 7-16-7 ..... S.D; W.O. 2,636 ft; igneous rock.
Richland O. & G. Co.'s No. 1 Singleterry, 1,980 ft. N, 660 ft. W, SE cor., Sec. 20-18-7 ..... Cmtd. 9-in. csg. 970 ft.
Shreveport Contractors, Inc.'s No. 1 Bule, 600 ft. E, 400 ft. N, SW cor., Sec. 17-15-7 ..... S.D; shale and boulders 3,537 ft.

SABINE PARISH

Bridges-Clark Oil Co.'s No. 1 Gay et al, 300 ft. S, 300 ft. E, NW cor. NE NW, Sec. 3-9-12 ..... Blew out, est. 10,000,000 ft. gas, 200 lbs., S.W., D.S. in hole; small show oil; D.S. stuck; T.D. 3,274 ft.
Bridges-Clark Oil Co.'s No. 1 McWilliams, 330 ft. S, 330 ft. E, NW cor., Sec. 30-10-11 ..... Drlg. 2,730 ft.
R. L. Gay, trustee's No. 7 Bowman-Hicks, 330 ft. N, 330 ft. W, SE cor. NE SW, Sec. 14-7-14 ..... Rig up.
R. L. Gay, trustee's No. 8 Bowman-Hicks Lbr. Co., 330 ft. N, 330 ft. W, SE cor. NW SW, Sec. 18-7-13 ..... Derrick.
R. L. Gay, trustee's No. 4 Sabine Lbr. Co., 330 ft. N, 330 ft. E, SW cor., Sec. 13-7-14 ..... Derrick.
G. M. LeGrand's No. 1 A. C. Haley, 1,020 ft. N, 3,300 ft. E, NW cor., Sec. 6-7-12 ..... Cmtd. back and whipstocked at 2,075 ft.; drlg. 2,100 ft.; old T. D. 2,576 ft.
Lohman et als' No. 1 Wyatt Lbr. Co., 150 ft. S, 330 ft. E, NW cor. NE SW, Sec. 18-4-11 ..... Derrick.
Paramount O. & G. Co.'s No. 1 Wootems, 330 ft. N, 330 ft. W, SE cor. NE NW, Sec. 11-6-12 ..... Derrick.
Pelican O. & G. Co.'s No. 1 La. Long Leaf Lbr. Co., 215 ft. N, 30 ft. E, SW cor. NW SE, Sec. 4-7-11 ..... Derrick.
Pelican O. & G. Co.'s No. 1 Sabine Lbr. Co., 330 ft. S, 330 ft. E, NW cor. NE SW, Sec. 1-7-12 ..... Began drlg. March 11.
Ray-Dawes Drlg. Co.'s No. 1 Mansfield Hdw. Lbr. Co., Sec. 36-8-13 (no check) ..... Began drlg. March 10; cmtd. 10-in. 101 ft.
W. F. Lacey et als' No. 1 Knouse, 60 ft. N, 111 ft. W, SE cor. NE SE, Sec. 36-8-13 ..... Rig up.
D. H. Riddick's No. 1 Screichfield, 400 ft. E, 400 ft. N, SW cor. NW SE, Sec. 18-9-12 ..... Claim show gas 2,315 ft.; W.O.
A. H. Tarver's No. 2 Long Bell, 800 ft. N, 800 ft. W, SE cor. SW, Sec. 18-8-13 ..... Drlg. 2,500 ft.

TENSAS PARISH

A. R. Willis et als' No. 1 Curry, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-12 ..... S.D. 600 ft.

UNION PARISH

Bahan & Bahan's No. 1 J. West, 660 ft. N, 660 ft. E, SW cor. SE, Sec. 33-23-3 ..... D.S. test 2,500 ft.; dry and S.D.; W.D.
Fred Stovall's No. 1 Stovall, 1,820 ft. E, 350 ft. N, SW cor., Sec. 32-23-4 ..... Rig up.

WEBSTER PARISH

F. M. Fuller's No. 1 Monzingo, 200 ft. N, 200 ft. W, SE cor., Sec. 27-18-8 ..... Began drlg. Nov. 10; cmtd. 10-in. 62 ft.

WEST CARROLL PARISH

H. L. Hunt, Inc.'s No. 1 R. E. Brown, NW cor. NW SW, Sec. 4-21-11 ..... Losing returns; arrange set 8-in. 1,100 ft.; T.D. 2,116 ft.
Palmer Corp.'s No. 1-A Marston, 1,320 ft. S, 89 deg., 35 min. W, 1,320 ft. of SE cor., Sec. 11-19-10 ..... Cmtd. 5-in. 2,592 ft.; T.D. 2,675 ft.

ARKANSAS
ASHLEY COUNTY

J. D. Marcum Co.'s No. 1 McGarry, 300 ft. W. 100 ft. S. center Sec. 10-19-4 ..... O.W.D.D.; arranging to deepen; T.D. 3,300 ft.

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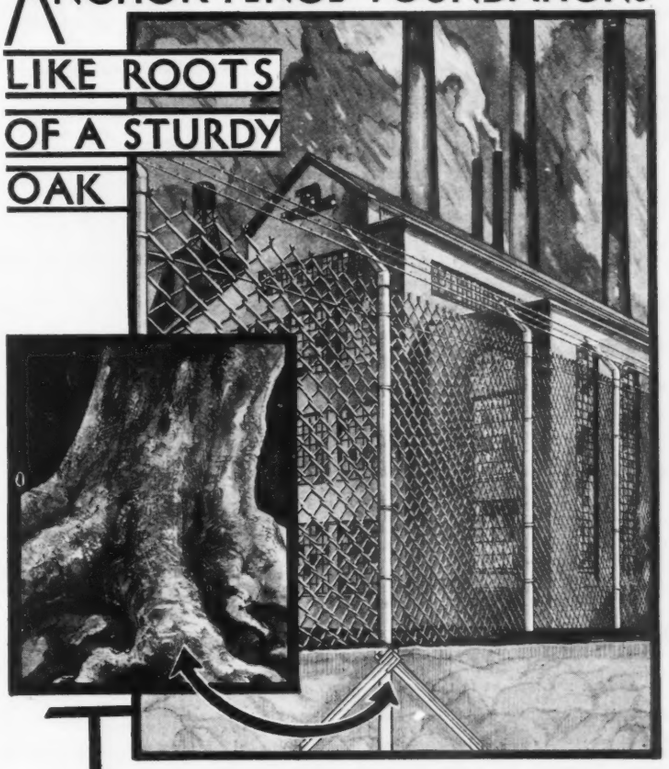

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CLEBURNE COUNTY

Cosden Oil Co. of Ark.'s No. 1 Donophan, 100 ft. S, 660 ft. E, NW cor. SW SE, Sec. 19-9-10 ..... Drlg. hard sand 2,310 ft.
Donnelly-Craver et als' No. 1 Doniphan Lbr. Co., SE cor. NW, Sec. 33-11-9 ..... Drlg. 185 ft.

COLUMBIA COUNTY

Parker et als' No. 1 Franks, 330 ft. S, 330 ft. W, C, Sec. 25-19-22 ..... S.D. 2,835 ft.

DREW COUNTY

McClintock & Goodka's No. 1 Ogles, 920 ft. W, 400 ft. S, NE cor., Sec. 35-13-5 ..... S.D. repairing rig 1,810 ft.

FAULKNER COUNTY

Gold Creek O. & G. Co.'s No. 2 Stermer, SE cor. NW SE, Sec. 17-4-13 ..... Began drlg. Dec. 12.

GARLAND COUNTY

Givens et als' No. 1 Garrett, 660 ft. S, 660 ft. W, C, Sec. 1-3-19 ..... Drlg. 3,604 ft.

LITTLE RIVER COUNTY

A. L. Buck's No. 1 Greason, NW NW, Sec. 25-12-32 .... S.D. 2,335 ft.
McDonald & Shaw's No. 1 W. E. Black, 240 ft. N, 450 ft. W, SE cor. SE NE, Sec. 12-13-28 ..... Tested S.W. 2,016 ft.

LOGAN COUNTY

M. W. Greeson's No. 1 C. S. Parke, 330 ft. N, 330 ft. W, SE cor., Sec. 21-8-24 ..... Cmtd. 6-in. 950 ft; drlg. broken shale 1,825 ft.

MADISON COUNTY

Phillips Pet. Co. and F. S. Craver's No. 1, C, Sec. 11-14-28. Tested 250,000 ft. gas 63 ft; drlg. 1,461 ft.

OUACHITA COUNTY

Artex Oil Co.'s No. 1 M. V. Smith, 330 ft. S, 330 ft. E, NW cor. SE NW, Sec. 31-15-17 ..... S.W. 3,077 ft; drlg. 3,166 ft; T.A. 3,188 ft.

Kobler & Erickson's No. 1 Rumph & Tyson, 300 ft. N, 300 ft. W, SE cor., Sec. 13-15-15 ..... Set 10-in. 98 ft.
A. P. Smith et als' No. 1 Reynolds, C SW NW, Sec. 21-14-17 ..... Tested dry 1,747 ft.; coring 1,759 ft.

PIKE COUNTY

Theo. Davis, trustee's No. 1 Ruth Wilson, 200 ft. S, 200 ft. W, NE cor., Sec. 25-5-26 ..... S.D; funds; T.D. 713 ft.

POPE COUNTY

Ark.-La. Pipe Line Co.'s No. 1 Crutcher, 330 ft. S, 450 ft. E, NW cor. NE NW, Sec. 14-9-21 ..... Drlg. 1,180 ft.
Cosden Oil Co.'s No. 1 Mo. Pac. R.R., 660 ft. N, 660 ft. E, SW cor. NW SE, Sec. 13-9-19 ..... Drlg. 2,793 ft.

PRAIRIE COUNTY

Transcontinental Oil Co.'s No. 1 Louis Novak, 330 ft. E, 330 ft. N, SW cor. SW NE, Sec. 36-2n-6 ..... Reaming to bottom 2,930 ft.

ST. FRANCIS COUNTY

Brownlee Drlg. Co.'s No. 1 Whitted, 110 ft. N, 110 ft. E, SW cor. SE NW, Sec. 28-4-1 ..... S.D.; funds; 300 ft.

UNION COUNTY

Johnson Drlg. Co.'s No. 1 Tate, 300 ft. N and W, SE cor. NE NW, Sec. 14-18-14 ..... Began drlg. March 5; cmtd. 10-in. 69 ft.; drlg. 1,100 ft.

Al-Cal Oil Corp.'s No. 1 Harvey, 660 ft. W, 300 ft. S, NE cor. SW SE, Sec. 1-17-16 ..... S.D.; W.O. 2,770 ft.
E. L. Chapman's No. 1 School, Sec. 9-18-13 ..... Location.
W. M. Coates, trustee's No. 1 McDuffie, Sec. 32-19-17... T.A. in red beds; T.D. 4,506 ft.
Sonnell Felsenthal No. 1 Fee, 330 ft. S, 320 ft. W, NE cor. NE NW, Sec. 2-18-15 ..... Pulled liner; S.D; W.O. 2,230 ft.
O. W. Estes' No. 1 Telford, 320 ft. S, 320 ft. E, NW cor. SW, Sec. 35-17-14 ..... Coring sand 2,655 ft.

Federal Pet. Co. and Union Sawmill Co.'s No. 1 fee, 330 ft. N, 330 ft. W, SE cor. NW NE, Sec. 9-18-13.. Derrick.
Lion Oil Ref. Co.'s No. 1 Ballard, 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 10-18-13 ..... Red beds 3,321 ft.
Marine Oil Co.'s No. 1 Simmons, 200 ft. N, 200 ft. W, SE cor. SE NW, Sec. 10-18-13 ..... Drlg. gummy lime 2,933 ft.
Marine Oil Co.'s No. 2 Simmons, 300 ft. N, 300 ft. E, SW cor. SE NW, Sec. 10-18-13 ..... Rig up.
Marine Oil Co.'s No. 2-B Winn, 200 ft. S, 200 ft. E, NW cor. NW SE, Sec. 10-18-13 ..... Drlg. 2,387 ft.
Modisette et als' No. 1 Union Sawmill Co., 330 ft. N, 330 ft. E, SW cor. NE NE, Sec. 14-18-14 ..... W.O.S.R.; 750 ft. fluid; T.D. 2,256 ft.

Johnson Drlg. Co.'s No. 1 Tate, Sec. 14-18-14 ..... Began drlg. March 5; cmtd. 10-in. 69 ft.; drlg. 1,100 ft.

Johnson-Gummer Co.'s No. 1 Cargile, Sec. 4-18-15 ..... Drlg. red beds 3,420 ft.
Simms Oil Co.'s No. 1 G. D. Simmons, 200 ft. S, 200 ft. W, NE cor. SW, Sec. 10-18-13 ..... Derrick.
Stark et als' No. 1 Ainsworth, NE cor. NW NE NE, Sec. 8-19-16 ..... T.A. 2,174 ft; corrected depth.

VAN BUREN COUNTY

Glenn Cole et al, trustees' No. 1 Scanian, 200 ft. S, 200 ft. W, NE cor. SE NW, Sec. 5-19-13 ..... S.D. 50 ft.

WASHINGTON COUNTY

Delbert & Graves' No. 1 Cunningham, Sec. 14-15-32 .... S.D. repairing pump; T.D. 550 ft.
O'Hara & Shetterly's No. 1 Boyd, SE cor. SE NE, Sec. 12-16-32 ..... Spudded Sept., 1928; S.D. 140 ft; resumed drlg. Aug. 25; U.R; T. D. 150 ft.
C H. Willoughby's No. 1 Jones, Sec. 34-16-30 ..... Trying to kill wtr. flow 2,150 ft; hard sand showing oil 1,637-49 ft.

Lincoln Leaseholding Synd.'s No. 1 Lincoln, Sec. 30-15-32 ..... U.R. 8-in. to T.D. 1,500 ft.

WHITE COUNTY

Letona Synd.'s No. 1 Letona, SE cor. NW SW, Sec 35-9-8 ..... Cmtd. 5 3/16-in. 3,500 ft; drlg. 3,605 ft.

EAST TEXAS

CAMP COUNTY

Rogers et als' No. 1 Enfelt, R. M. Montgomery Sur. .... Tested dry 1,870 ft; S.D. 1,920 ft.

MARION COUNTY

R. E. Davidson's No. 1 Susie Chapman, Jackson-Grayson Survey ..... Derrick.

RED RIVER COUNTY

D. M. Buffington's No. 1 Hossier, E. Hughhart Sur. .... S.D. 2,365 ft.
Shad Harper's No. 1 W. R. Garland, J. Wagley Sur. .... S.D. 1,862 ft.
Johnson Pet. Co.'s No. 2 Randolph, Edward Dean Sur... S.D. 2,182 ft.

SHELBY COUNTY

Benedum & Trees Oil Co.'s No. 1 McCann, D. G. Green Sur. ..... Cmtd. 8¼-in. 2,762 ft.
Chapperall Oil Co.'s No. 2 Holt, Matthew Moore Sur. .. S.D. for orders 3,004 ft.

MISSISSIPPI

ALCORN COUNTY

Alcorn Pet. Co.'s No. 1 Matthews, SE cor., Sec. 14-2s-7e.. Shot with 100 qts. and reset 6-in. 2,393 ft.

CHICKASAW COUNTY

Hightower & Golson's No. 1 Flemming, NE cor., Sec. 20-13-3 ..... Driving 8¼-in. through quicksand; T.D. 1,280 ft.

HINDS COUNTY

Oscar Brown's No. 1 Riverside (formerly Hennessee et als') SE cor. SE SW, Sec. 23-16-5 ..... Set 12½-in. 30 ft; S.D. 1,050 ft.
Jackson O. & G. Co.'s No. 1 Mayes, Sec. 2-5-1e ..... Estimated 2,000,000 ft. gas 2,000 bbls. wtr.; T.A., T.D. 2,480 ft.

Jackson O. & G. Co.'s No. 1 Taylor, center Sec. 35-6-1e.. Derrick.
Mrs. Reeder et als' No. 1 State, SE cor. NW NW, Sec. 25-6-1e ..... W.O; T.D. 2,905 ft.

HUMPHREYS COUNTY

E. C. Steele et als' No. 1 C. B. Box, SE cor. SE NE, Sec. 25-14-4w ..... Set 12½-in. 60 ft; S.D.

LAUDERDALE COUNTY

Lauderdale O. & G. Co.'s No. 1 Lackey, 990 ft. S and E, NW cor. NE, Sec. 2-7-16 ..... Set 8¼-in. 2,792 ft; T.D. 2,816 ft. sand 2,809-14 ft.; W. O.; T.D. 2,168 ft.
Meridian O. & G. Co.'s No. 1 Hauser, Sec. 33-8-18 ..... S.D.; green sand 2,698 ft.
J. R. Smith Oil Co.'s No. 1 C. F. Craig, Sec. 2-6-14 .... Derrick.

LAFAYETTE COUNTY

Banks-Goode et als' No. 1 May, 113½ rods S, 26 rods E, NW cor. SW, Sec. 22-10-1w ..... Derrick.

LINCOLN COUNTY

Lincoln O. & G. Co.'s No. 1 Pat Case, NE NE, Sec. 21-8-6 ..... S.D; W.O. 2,221 ft.

MONROE COUNTY

Amory Dev. Co.'s No. 1 Bourland, Sec. 2-13-19 ..... S.D. 2,912 ft; bailer lost in hole.
Amory Pet. Co.'s No. 1 Hall, Sec. 8-13-19 ..... Drlg. 2,362 ft.; showing small amount gas; 6-in. 2,314 ft.

Park Bowser et als' No. 1 Cowart, second hole, Sec. 2-12-19 ..... S.D. 30 ft.

RANKIN COUNTY

Gulf Ref. Co.'s No. 1 Rainey, NW NW, Sec. 13-5-1e .... Began drlg. Feb. 19; cmtd. 15½-in. 80 ft., 12½-in. 960 ft.

WARREN COUNTY

El Dorado Oil Co.'s No. 1 Dornbush, Sec. 8-18-15 ..... S.D. 2,475 ft.; 2,350 ft. D.S. in hole; W.O.

YALOBUSHA COUNTY

Carter Oil Co. and J. D. Collett's No. 1 Blackmur, 330 ft. S, 990 ft. W, C, Sec. 14-11-4 ..... Fishing drill stem; T.D. 2,433 ft.

YAZOO COUNTY

Amerada Pet. Corp.'s No. 1 Doherty, SW SW, Sec. 24-12-2 ..... Cored black shale 4,436 ft.

ALABAMA

LAMAR COUNTY

Briggs & Knapp's No. 1 Wefel, Sec. 25-12-14 ..... T.A. 1,740 ft.

LAUDERDALE COUNTY

A. D. Morton et als' No. 10 O'Neal estate, Sec. 8-2s-13w. Rigging up cable tools.

MARION COUNTY

Hobson et als' No. 1 John Clark, SE, Sec. 29-11-14 ..... Derrick pattern.

WASHINGTON COUNTY

S. A. Hobson's No. 1 Hobson Bros., Sec. 9-8-2 ..... S.D; S.W. flow at 1,450 ft.
S. A. Hobson's No. 1 Wilson, Sec. 27-7-1 ..... Fishing bailer; T.D. 881 ft.
Oscar Brown's No. 2 Land & Cotton Co., Sec. 25-3-2w... Drlg. 700 ft.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 64)

Sun Oil Co.'s No. 5 Wilburn Fee, southeast ..... Rig.
Sun Oil Co.'s No. 4 Chambers, south ..... Comp. flowing 340 bbls. pipe line oil 5,375 ft.
The Texas Company's No. 1 Lawrence ..... Pulling screen 5,528 ft.
F. L. Thompson's No. 2 Wilburn southeast, ... Rig.
Unice Oil Co.'s No. 2 Feldman, east ..... Comp. flowing 250 bbls. pipe line oil 5,162 ft.
Yount Lee Oil Co.'s No. 11 Chambers, south ..... Failed to pump, 5,550 ft.; pulling screen to deepen.
Yount Lee Oil Co.'s No. 13 Chambers, south ..... Drlg. water sand 3,973 ft.
Yount Lee Oil Co.'s No. 3 Phillips, southeast ..... Drlg. water sand 3,973 ft.
Yount Lee Oil Co.'s No. 6 Woodward, southeast ..... Drlg. shale and lime 3,450 ft.
Yount Lee Oil Co.'s No. 1 Zadie Fisher, southeast ..... Drlg. sand and shale, showing oil 5,745 ft.

RACCOON BEND—AUSTIN COUNTY

Humble Oil & Ref. Co.'s No. 8-B Deutrich ..... Comp. flowing 85 bbls. 3,291 ft.
Humble & Valley's No. 9-A Deutrich ..... Drlg. sandy shale 3,289 ft.
Humble & Valley's No. 1 Duncan, State land ..... Comp. flowing 270 bbls. 3,291 ft.
Humble & Valley's No. 6 Gotosky ..... Shut down 3,177 ft.
Humble & Valley's No. 3 Helmuth ..... Drlg. shale and lime 2,564 ft.
Humble & Valley's No. 1-B Machamehl ..... Shut down 3,602 ft.
Humble & Valley's No. 1-C Mitchell ..... Location.
Humble & Valley's No. 7 Payne ..... Derrick.
Humble & Valley's No. 8 Payne ..... Derrick.
Humble & Valley's No. 5 Saunders ..... Drlg. shale and lime 1,180 ft.
Humble & Valley's No. 4 Sherrill ..... Rig.
Humble & Valley's No. 6 Thompson ..... Drlg. sandy shale 3,147 ft.
Humble & Valley's No. 7 Thompson ..... Derrick.
Humble & Valley's No. 7 Urban ..... Shut down 1,165 ft.
Humble & Valley's No. 7-A Walton ..... Drlg. shale 3,325 ft.
Humble & Valley's No. 4 Woodley ..... Drlg. sandy shale 3,104 ft.
Humble & Valley's No. 6 Woodley ..... Derrick.
Humble & Valley's No. 7 Woodley ..... Derrick.
Humble & Valley's No. 8 Woodley ..... Derrick.

DE WALT—FORT BEND COUNTY

Humble Oil & Ref. Co.'s No. 3-B Bankers Mortgage ..... Drlg. shale 3,012 ft.
Humble Oil & Refg. Co.'s No. 13 Brazos ..... Rig.
Humble Oil & Refg. Co.'s No. 14 Brazos ..... Drlg. sand, shale and lime 1,175 ft.
Humble Oil & Ref. Co.'s No. 13 Sugarland ..... Rig.
Humble Oil & Ref. Co.'s No. 9 Nelson ..... Drlg. sand and shale 3,676 ft.

HUMBLE—HARRIS COUNTY

Benedum & Trees' No. 1 Foley, south ..... Location.
Continental Oil Co.'s No. 1 Koltar, south ..... Rig.
Hammell Drlg. Co.'s No. 1 Allo ..... Drlg. rock 2,580 ft.
Houtex Oil Co.'s No. 1 O'Boyle, west ..... Drlg. shale and lime 2,670 ft.
Humble Oil & Refining Co.'s No. 11 Williams, south ..... Derrick.
M. LaRue's No. 1 Cicero ..... Drlg. gumbo 828 ft.
T. P. Lee's No. 1 Wheeler & Pickens, east ..... Location.
Lee & Wilson's No. 1 Wise, west ..... Location.
Rio Bravo Oil Co.'s No. 1 fee, west ..... Drlg. rock 2,900 ft.
Showers & Moncrief's No. 1 Hull ..... Rig.
South Texas Petroleum Co.'s No. 14 Morris, south ..... Set 400 ft. screen 5,205 ft.; comp. flowing 350 bbls. oil
South Texas Petroleum Co.'s No. 3 Lee ..... Comp. flowing 250 bbls. oil 5,133 ft.
South Texas Petroleum Co.'s No. 4 Lee, south ..... Location.
Cullen & West's No. 2 Burt, east ..... Drlg. sand and shale 4,430 ft.
Sun Oil Co.'s No. 4 Bender, west ..... Drlg. hard shale 3,678 ft.
The Texas Company's No. 1 Atlantic & Gulf, southeast .. Drlg. sand and shale 4,695 ft.
The Texas Company's No. 16 Koehler (workover) ..... Drlg. hard sand 2,450 ft.
The Texas Company's No. 24 House, north ..... Drlg. hard sand 3,380 ft.

BLUE RIDGE—FORT BEND COUNTY

Humphreys Corp.'s No. 1 West-Schenck (workover) ..... Drlg. shale 3,400 ft.
Sinclair Oil & Gas Co.'s No. 1 Blakely ..... Drlg. gumbo and lime 2,738 ft.

PIERCE JUNCTION—HARRIS COUNTY

Continental Oil Co.'s No. 2 Prudential (workover) ..... Drlg. hard sand and lime 4,305 ft.
Navarro Oil Co. and Texas Exploration Co.'s No. 18 Dooley ..... Drlg. plug, to test oil sand 4,620 ft.
Pure Oil Co.'s No. 1 Herman (workover) ..... Swabbed salt water 4,981 ft.; standing.
Pure Oil Co.'s No. 2 Herman, southwest ..... Making drill stem test 4,558-4,612 ft.
Rio Bravo Oil Co.'s No. 12-A Settegast (workover) ..... Drlg. sand and boulders 2,079 ft.
Rio Bravo Oil Co.'s No. 13-A Settegast (workover) ..... Milling 3,566 ft.
Rio Bravo Oil Co.'s No. 18-A Settegast, west ..... Derrick.
Rio Bravo Oil Co.'s No. 19-A Settegast ..... Location.
Saxet Gas Co.'s No. 6 Herman, southwest ..... Standing.
Saxet Gas Co.'s No. 7 Herman, southwest ..... Derrick.
Superior Oil Co.'s No. 3-A Whitehead ..... Rigging up to pump 4,228 ft.

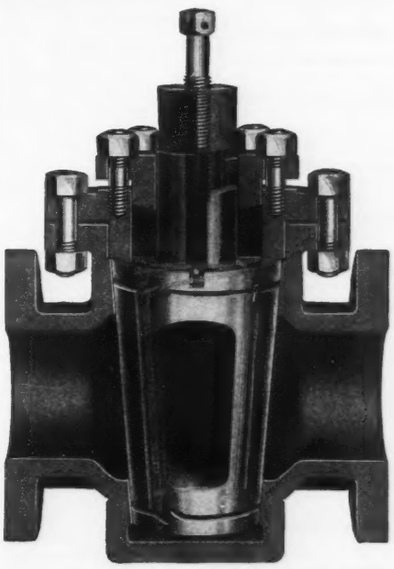
LIBERTY—LIBERTY COUNTY

Empire Gas & Fuel Co.'s No. 11 Groggan ..... No report.
The Texas Company's No. 6 Green, northwest ..... Drlg. gumbo 1,248 ft.

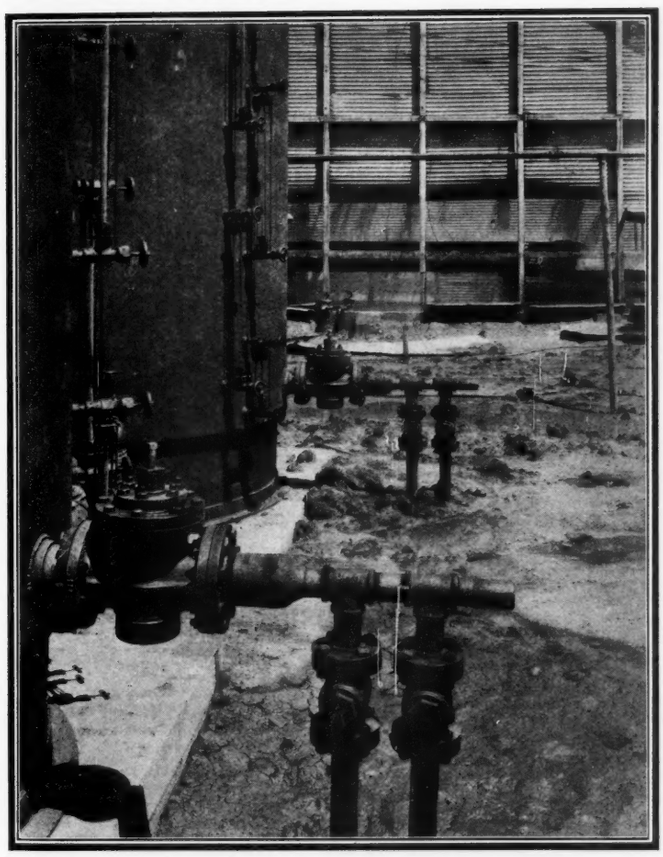
HULL—LIBERTY COUNTY

W. B. Flynn's No. 8 Harrison (workover) ..... No report.
Empire Gas & Fuel Co.'s No. 31 Barngrover ..... Comp. dry gas well 3,416 ft.
Ocean Springs Oil Co.'s No. 1-H Palmer ..... Drill stem stuck 2,000 ft.
The Texas Company's No. 1 Barrow fee ..... Derrick.

No lubricant waste in BARCO Valves



The double lubricating channels of Barco Valves are blind, connected to the main lubricating channels ONLY when out of contact with line pressure. The pressure therefore does not wash out the lubricant.



Barco Lubricated Plug Valves used in gasoline plants.

A FEATURE of Barco Lubricated Plug Valves that is saving oil companies and refineries maintenance expense is the design of the lubricating system. The plug surfaces between the ports are each lubricated through two vertical grooves, and horizontal grooves lubricate above and below these ports.

As the valve is opened or closed, one vertical groove becomes exposed to line pressure. In the Barco, this exposed groove is disconnected from the main lubricating channels while in contact with line pressure—therefore the latter does not wash out the lubricant.

In addition, the Barco Valve is made absolutely tight by fine machining and lapping. The lubricant is used only for ease of operation and for protection to the wearing surfaces.

Our latest bulletin tells more about the Barco features and about Barco lubricants. Write for it.

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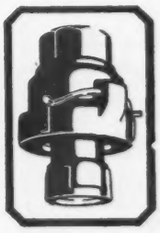
BARCO



Valves and Joints

OGJ 3-20 Gray

The Texas Company's No. 8 Hannah-Vacuum ..... Drlg. sticky shale 5,067 ft.

BIG CREEK—FORT BEND COUNTY

Benedum & Trees' No. 1 J. F. Ahlers ..... Derrick.
Benedum & Trees' No. 1 Moore ..... Heaving shale 4,179 ft.; cem. 6⅝-in. casing.
Navarro Oil Co.'s No. 4 Hausler ..... Set 2 joints screen, tested salt water 3,449 ft.; to deepen.
The Texas Company's No. 4 fee (workover) ..... Drlg. shale 4,330 ft.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 10 Mayes ..... Drlg. gumbo and lime 2,075 ft.
Pure Oil Co.'s No. 11 Mayes ..... Derrick.
Pure Oil Co.'s No. 4 Lost Lake ..... Drlg. gumbo 4,095 ft.

NASH—BRAZORIA COUNTY

Rycade Oil Corp.'s No. 26 Wisdom ..... Drlg. sandy shale 5,922 ft.

BATSON—HARDIN COUNTY

Ada Belle Oil Co.'s No. 133 Sun ..... No report.
East Batson Oil Co.'s No. 9 Bates ..... No report.

SOUR LAKE—HARDIN COUNTY

Lake View Oil Co.'s No. 8 Minor ..... No report.
Gilbert Oil Co.'s N. 107 Gilbert ..... Derrick.
M. E. Peveto's No. 1 Merchant ..... No report.
The Texas Company's No. 305 fee ..... Pulling screen 791 ft.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 81-B Cotton ..... Pumped salt water 527 ft.; abandoned.
Rio Bravo Oil Co.'s No. 80-A Cotton ..... Drlg. gumbo 135 ft.

GOOSE CREEK—HARRIS COUNTY

Humble Oil & Ref. Co.'s No. 77 Simms-Smith ..... Total depth 5,607 ft.; reaming to 5,400 ft.
A. F. Bradbury's No. 5 Gillette ..... Total depth 910 ft.

SPINDLETOP—JEFFERSON COUNTY

Yount Lee Oil Co.'s No. 61 McFaddin (workover) ..... Drlg. 4,000 ft.
Yount Lee Oil Co.'s No. 79 McFaddin (workover) ..... Pulling screen to deepen.
Yount Lee Oil Co.'s No. 97 McFaddin (workover) ..... Drlg. sandy shale 5,800 ft.
Yount Lee Oil Co.'s No. 124 McFaddin ..... Drlg. sand 5,106 ft.
Yount Lee Oil Co.'s No. 126 McFaddin ..... Drlg. shale 4,646 ft.
Yount Lee Oil Co.'s No. 127 McFaddin ..... Drlg. 5,320 ft.
Yount Lee Oil Co.'s No. 128 McFaddin ..... Spudded.
Yount Lee Oil Co.'s No. 99 Gladys City ..... Heaving shale 5,453 ft.
Yount Lee Oil Co.'s No. 45 Gladys City ..... Testing 3,236 ft.

WEST COLUMBIA—BRAZORIA COUNTY

Saxet Oil Co.'s No. 3 Hogg ..... Derrick.
The Texas Company's No. 26 Arnold ..... Waiting control head 2,694 ft.

NORTH DAYTON—LIBERTY COUNTY

John A. Deering's No. 6 fee ..... Standing.
Humble Oil & Refining Co.'s No. 1 Jamison, south ..... Drlg. gumbo and lime 4,781 ft.
Harrison Oil Co.'s No. 1 Jamison ..... Drlg. gumbo and lime 4,806 ft.
Harvey Smith's No. 1 Simmons & Brown ..... Drlg. gumbo 3,945 ft.
The Texas Company's No. 1 Paraffine fee ..... Drlg. rock 1,408 ft.

HIGH ISLAND—GALVESTON COUNTY

Gulf Production Co.'s No. 5-A Smith ..... Drlg. hard sand 4,620 ft.
Marrs McLean's No. 17 Cade ..... Drill stem stuck 3,591 ft.

ORCHARD—FORT BEND COUNTY

Gulf Production Co.'s No. 20 Moore ..... Set one joint screen 3,980 ft.; comp. flowing 2,300 bbls. 27.8 gravity pipe line oil on ½-in. choke.
Gulf Production Co. No. 21 Moore ..... Derrick.

REFUGIO—REFUGIO COUNTY

Fox-Heflin's No. 1 Fannie Heard ..... Cem. casing to test oil sand 3,682-3,700 ft.
Hamil Drilling Co.'s No. 1 Cable ..... Drlg. 1,612 ft.
Herman F. Heep's No. 1 Vance ..... Comp. flowing 1,500 bbls. pipe line oil on 2-in. tubing 3,689-3,702 ft.
Houston Gulf Gas Co.'s No. 2 Lambert ..... Drlg. sand 3,359 ft.
Houston Gulf Gas Co.'s No. 3 Morgan Shelley ..... Cem. surface casing 477 ft.
Houston Gulf Gas Co.'s No. 3 Morgan-Vance ..... Cem. surface casing 451 ft.
Houston Oil Co.'s No. 1 Rooke Hotel ..... Repairing rig 3,702 ft.
Houston Oil Co.'s No. 14 Rooke ..... Drlg. gumbo 2,312 ft.
Houston Oil Co.'s No. 1 Tom Heard ..... Drlg. gumbo 4,464 ft.
Houston Oil Co.'s No. 1 Shelton ..... Cem. casing to test oil sand 3,664-82 ft.
Houston Oil Co.'s No. 1 Dorsey ..... Tested salt water 3,686-3,702 ft.; to plug back.
Houston Oil Co.'s No. 1 Doughty ..... Drlg. shale 3,847 ft.
Houston Oil Co.'s No. 1 Leisering ..... Drlg. gumbo and lime 501 ft.
Houston Oil Co.'s No. 9 Fannie Heard (workover) ..... Drlg. sticky shale and lime 3,548 ft.
Independent Oil & Gas Co.'s No. 1-C Heard ..... Drlg. sandy lime 3,901 ft.
Independent Oil & Gas Co.'s No. 3 Claude Heard ..... Cem. casing to test oil sand 3,700 ft.
Independent Oil & Gas Co.'s No. 1 T. P. Shelley ..... To plug back second time after swabbing salt water 5,488 ft.
Independent Oil & Gas Co.'s No. 1 Huddleston ..... Location.
Independent Oil & Gas Co.'s No. 1 Mercy Academy ..... Drlg. sandy shale 3,630 ft.
Independent Oil & Gas Co.'s No. 1 Helen Reilly ..... Swabbing to test oil sand 3,600-82 ft.
Independent Oil & Gas Co.'s No. 3 West ..... Drlg. hard lime 1,825 ft.
Karona Oil Co.'s No. 1 Zarsky ..... Drlg. gumbo and lime 2,711 ft.
Edwin M. Jones' No. 1-A J. F. B. Heard ..... Cem. casing to test sand 3,665-82 ft.
Edwin M. Jones' No. 1-A Mitchell ..... Location.
Edwin M. Jones' No. 1 Jeter ..... Testing oil sand 3,707-10 ft.
Mission Drlg. Co.'s No. 1 O'Brien ..... Drlg. shale and lime 5,465 ft.
Mission Drlg. Co.'s No. 1 Moss ..... Drlg. gumbo and lime 4,130 ft.
T. P. Morgan's No. 1 City ..... Derrick.
Morgan & Morgan's No. 1 Rooke ..... Drlg. gumbo 5,675 ft.
Morgan Oil Corp.'s No. 5 City ..... Comp. flowing 1,200 bbls. pipe line oil on ⅝ and ¼-in. chokes; sand 3,688-3,703 ft.
Morgan Oil Corp.'s No. 1 Fox, Block 70 ..... Set screen to test.
Morgan Oil Corp.'s No. 1 Tom Heard ..... Comp. flowing 500 bbls. 5,483 ft.
Morgan Oil Corp.'s No. 1 Carlysle, Block 2 ..... Cem. 8¼-in. casing to test 5,470 ft.
Morgan Oil Corp.'s No. 1 Powers ..... Drlg. rock 4,948 ft.
Pearson Properties' No. 1 Ryalls ..... Cem. 6⅝-in. casing 5,474 ft.; oil sand 5,478-82 ft.
Pearson Properties' No. 1 Johnson ..... Rig.
Ed Price et al's No. 1 Mission River ..... Shut down for repairs 2,704 ft.
Rutherford-Traylor Oil Co.'s No. 1 Cable ..... Derrick.
Saxet Oil Co.'s No. 2 Ryals ..... Location.
Saxet Oil Co.'s No. 3 Holmes Heard (old well) ..... Cem. casing to test gas sand 3,692 ft.
Strube & Strube's No. 1 Cable ..... Drlg. hard shale 1,610 ft.
Sun Oil Co.'s No. 3 Buckley, Lot 5, Blk. 2 ..... Tested showing of oil 3,693 ft.; re-setting screen.
The Texas Company's No. 1 Shelton ..... Drlg. 6,041 ft.
Union Producing Co.'s No. 2 Lambert ..... Drlg. sandy shale 4,001 ft.
Union Producing Co.'s No. 3 Lambert ..... Location.
Union Producing Co.'s No. 3 Morgan-Shelly ..... Drlg. sand and boulders 1,034 ft.
Union Producing Co.'s No. 3 Morgan-Vance ..... Drlg. sticky shale 1,172 ft.
Union Producing Co.'s No. 3 O'Brien ..... Drlg. 697 ft.
Union Producing Co.'s No. 1 Ben Shelton ..... Trying to kill gas to abandon 5,800 ft.
Union Producing Co.'s No. 4 Shelley ..... Drlg. shale and lime 1,327 ft.
Union Producing Co.'s No. 3 Powers ..... Cem. casing 1,224 ft.
Union Producing Co.'s No. 4 Powers ..... Location.
Union Producing Co.'s No. 2 Shelton ..... Location.
Union Producing Co.'s No. 3 Mitchell ..... Rig.
Union Producing Co.'s No. 4 Mitchell ..... Location.
Union Producing Co.'s No. 4 O'Brien ..... Drlg. 1,007 ft.
Union Producing Co.'s No. 1-A Rose Lambert ..... Drlg. hard shale 5,970 ft.

SOUTH LOUISIANA FIELDS

LOCKPORT—CALCASIEU PARISH

Vacuum Oil Co. and Gulf Ref. Co.'s No. 25 Miller ..... Casing collapsed; sidetracking 3,435 ft.
Vacuum Oil Co. and Gulf Ref. Co.'s No. 26 Miller ..... Derrick.
Vacuum Oil Co. and Gulf Ref. Co.'s No. 27 Miller ..... Derrick.
Vacuum Oil Co. and Gulf Ref. Co.'s No. 8 Bordages ..... Tested salt water 4,401 ft.
Vacuum Oil Co. and Gulf Ref. Co.'s No. 4-A fee ..... Location.
Vacuum Oil Co. and Gulf Ref. Co.'s No. 5 Freiberg & Wolf ..... Location.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 1 Verdine ..... Comp. flowing 850 bbls oil 3,950 ft.
Calcasieu Oil Co.'s No. 5 Caldwell ..... No report.
Duhon Oil & Mineral Co.'s No. 1 Duhon ..... Derrick.
Sunshine Oil Co.'s No. 6 Ellender ..... To test oil sand 3,271 ft.
Rex Petroleum Corp.'s No. 1 Duhon ..... Bailed dry; standing.
Rycade Oil Corp.'s No. 1 Gulf Land ..... Drlg. hard sand 5,054 ft.
Rycade Oil Corp. and Humble's No. 5 Gulf Land ..... Location.
The Texas Company's No. 6 State, Calcasieu Lake ..... Total depth 3,306 ft.; reaming.

JENNINGS—ACADIA PARISH

Cline, Smith & Cline's No. 9 Conklin ..... No report.
The Texas Company's No. 5 Rayne heirs, King tract .... No report.
Yount Lee Oil Co.'s No. 8 Houssiere-Latrielle, Section 47-9s-2w ..... Drlg. 6,000 ft.
Yount Lee Oil Co.'s No. 6 Crowley ..... Drlg. 3,941 ft.

EDGERLY—CALCASIEU PARISH

Rex Petroleum Co.'s No. 11 Hunter ..... No report.
Strange Oil Co.'s No. 1 Koonce ..... Rigging up to pump 3,774 ft.

VINTON—CALCASIEU PARISH

Marrs McLean's No. 4 Gray (workover) ..... No report.
Vinton Petroleum Co.'s No. 5 Matilda Gray ..... Drilling.
Vinton Petroleum Co.'s No. 6 Matilda Gray ..... Rigging up to pump 2,429 ft.

BAYOU BOUILLON—ST. MARTIN PARISH

Rycade Oil Corp.'s No. 9 Bouillon fee ..... Cored water sand 3,328 ft.
Rycade Oil Corp.'s No. 5 Atchafalaya fee ..... Comp. flowing 70 bbls. pipe line oil an hour on ½-in. choke 4,341 ft.
The Texas Company's No. 2 St. Martin Land Co. ..... No report.

STARKS—CALCASIEU PARISH

J. O. Davis' No. 1 Industrial ..... Standing 3,775 ft.
Gulf Refining Co.'s No. 20 Lutcher-Moore ..... Started drilling.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 8 Yount Lee (workover) ..... Comp. flowing 960 bbls. net oil on ⅝-in. choke through 2½-in. tubing; total depth 5,642 ft.; fluid showed 72 per cent salt water.
Pure Oil Co.'s No. 9 Yount Lee ..... Waiting drill pipe 4,160 ft.

ANSE LA BUTTE—ST. MARTIN PARISH

Yount Lee Oil Co.'s No. 1 Hebert ..... No report.

SORRENTO—ASCENSION PARISH

Gulf Refining Co.'s No. 17 United Land Co. ..... Drlg. gyp 4,170 ft.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

Black Oil Co.'s No. 1 Lancashire, near Sealey ..... Drlg. gumbo 2,463 ft.
Empire Gas & Fuel Co.'s No. 1 Boyd, San Felipe ..... Started drilling.
O'Hara et al's No. 1 Batla, near Raccoon City ..... Drill stem stuck 3,450 ft.
McInnery et al's No. 1 McDay, west of Kinney ..... Shut down 500 ft.

BRAZORIA COUNTY

The Texas Company's No. 1 Ewin, Harvey Little Sur. .... Drlg. gumbo 1,248 ft.
Mills Bennett Production Co.'s No. 1 Random, Allen ... Rig.
Faust et al's No. 5 Faust ..... Drlg. water sand 3,900 ft.
Rucks & Patterson's No. 1 Hunter, southwest of Hoskins.. Drlg. rock 1,185 ft.
Rycade Oil Corp.'s No. 1 Rapid City, Henry Austin Sur... Rig.
Shell Petroleum Corp.'s No. 1 Blakely-Winston, Danbury ..... Drlg. hard sandy lime 4,752 ft.
Steel & Strickland's No. 1 Lockridge ..... Rig.
Word Drlg. Co.'s No. 1 Proctor, west of Hoskins Mound.. Drlg. gumbo and pyrite 2,879 ft.

CHAMBERS COUNTY

Shell Petroleum Corp.'s No. 1 Herff, Moss Bluff ..... Rig.

FORT BEND COUNTY

Gulf Production Co.'s No. 1 Brazos Valley, Clodine ..... Drlg. sticky shale 5,290 ft.
Pure Oil Co.'s No. 1 Jackson Brown, Barrett and Harris Sur. ..... Derrick.

GALVESTON COUNTY

Tom C. Patten's No. 1 Jackson ..... Derrick.

GRIMES COUNTY

Cranfill & Reynolds Oil Co.'s No. 1 Baylor, southeast Navasota ..... Drlg. sand 1,380 ft.

HARRIS COUNTY

Baldwin and associates' No. 1 Kitzman, Cypress ..... Drlg. shale 4,195 ft.
Higgins Oil & Fuel Co.'s No. 1 Sladous, Mykawa ..... Drlg. shale 5,888 ft.
Humble Oil & Ref. Co.'s No. 7 Warren, Hockley ..... Drlg. sand and shale 4,525 ft.
Humble Oil & Ref. Co.'s No. 2 Minnetex ..... Standing with casing cem. 1,177 ft
Humble Oil & Ref. Co.'s No. 1 Sladous (workover) ..... Pulling screen to deepen.
Humble Oil & Ref. Co.'s No. 2 Woodburn ..... Abandoned in shale 5,241 ft.
Rich et al's No. 1 Highlands ..... Derrick.
Sloan Prospecting Co.'s No. 1 Ulrich, Hannah Nash Sur. .. Drlg. gumbo and shale 1,655 ft.
Martin, Drake & Jones' No. 1 Haney ..... Drlg. shale 3,338 ft.
Watts Brothers' No. 1 Hubert, Mykawa ..... Drlg. water sand 5,305 ft.

JEFFERSON COUNTY

Bayou Oil Co.'s No. 1 Hooks-Borduge ..... Drlg. gumbo 525 ft.
Gulf Production Co.'s No. 8 Bordages ..... Drlg. hard sand 6,138 ft.
Gulf Production Co.'s No. 1-A Guy Junker, Fannett ..... Drlg. sticky shale 5,871 ft.
Gulf Production Co.'s No. 13 Thomas, Fannett ..... Cem. casing to test oil sand 3,901-06 ft.
Gulf Production Co.'s No. 5 Burrell, Fannett ..... Drlg. gumbo 1,470 ft.
The Texas Company's No. 1 Fitzhugh, Big Hill ..... Washing; total depth 5,857 ft.
Westbury Oil Co.'s No. 1 West, Choate Sur. ..... Drlg. 2,590 ft.

LIBERTY COUNTY

Gulf Production Co.'s No. 1 Weiser ..... Drlg. 6,250 ft.
Gulf Production Co.'s No. 3 Boyt, Hankamer ..... Set one joint screen; comp. flowing 2,000 bbls. pipe line oil daily on ½-in. choke; sand 4,879-81 ft.; gravity 27°; well shut in for storage.
Gulf Production Co.'s No. 4 Boyt, Hankamer ..... Location.
Gulf Production Co.'s No. 5 Boyt, Hankamer ..... Location.
Gulf Production Co.'s No. 1 McFaddin, Moss Bluff ..... Location.
Cranfill & Reynolds Oil Co.'s No. 8 Esperson, Sheeks .... Drlg. gumbo 2,640 ft.
Cranfill & Reynolds Oil Co.'s No. 9 Esperson, Sheeks ..... Derrick.
Cranfill & Reynolds Oil Co.'s No. 2 Moores Bluff, Sheeks.. Drlg. 1,209 ft.
Yount Lee Oil Co.'s No. 2 Moores Bluff, Sheeks ..... Drlg. sand 3,340 ft.; total depth 6,689 ft.

MATAGORDA COUNTY

Cockburn et al's No. 1 Hawkins, Shepherds, Mott ..... Drlg. salt water sand 4,534 ft.

MONTGOMERY COUNTY

Kelley-Kaker's No. 2 Guergus ..... Drlg. 1,000 ft.

ORANGE COUNTY

Gulf Production Co.'s No. 1 W. H. Starks, Port Neches ... Location.
The Texas Company's No. 2 Kuhn, Port Neches ..... Hauling in material.
The Texas Company's No. 2 Stark, Port Neches ..... Rig.

WALLER COUNTY

Kirby Petroleum Co.'s No. 2 Davis, San Felipe ..... Derrick.
W. P. Morris' No. 1 Chapman, Donoho Sur. ..... Drlg. shale 2,080 ft.

SOUTH LOUISIANA

ACADIA PARISH

Calcasieu Oil Co.'s No. 1 Hays, Sec. 10-8s-1w ..... Drlg. 1,706 ft.

ASSUMPTION PARISH

Gulf Refining Co.'s No. 1 Armilise, Napoleonville ..... Drlg. shale 5,802 ft.

CALCASIEU PARISH

Wilfred Lahay's No. 2 James ..... Standing 3,775 ft.
Calcasieu Oil Co.'s No. 1 Moss, Sec. 8-10s-9w ..... Location.

CAMERON PARISH

Shell Petroleum Corp.'s No. 15 Watkins, Black Bayou ... Location.
Shell Petroleum Corp.'s No. 14 Watkins, Black Bayou ... Rig.
The Texas Company's No. 5 Calcasieu Lake, Calcasieu Lake Dome ..... Building derrick.
Vacuum Oil Co.'s No. 1 Cameron Meadows, Sec. 21-14s-13w ..... Drlg. sandy shale showing oil 2,036 ft.

IBERIA PARISH

The Texas Company's No. 5 Vermillion Bay ..... Location.

IBERVILLE PARISH

Shell Petroleum Corp.'s No. 4 Wilbert, White Castle .... Drlg. water sand 2,810 ft.

Standard Oil Co.'s No. 4 Schwing, Bayou Blue ..... Drlg. 1,000 ft.
Standard Oil Co.'s No. 5 Schwing, Bayou Blue ..... Building derrick.
Standard Oil Co.'s No. 5 Wilbert, Bayou Blue ..... Drlg. 980 ft.
Standard Oil Co.'s No. 6 Wilbert, Bayou Blue ..... Building derrick.
Standard Oil Co.'s No. 1 Case, Bayou Des Glaise ..... No report.

JEFFERSON DAVIS PARISH

Pure Oil Co.'s No. 1 May, Sec. 1-10s-5w ..... Fishing drill pipe 3,970 ft.
Shell Petroleum Corp.'s No. 1 Heyd, Iowa ..... Derrick.
Yount Lee Oil Co.'s No. 1 Courtney, Welsh ..... Rig.

LA FOURCHE PARISH

Gulf Refining Co.'s No. 1 City of New Orleans, Bay Champagne ..... Drlg. shale 5,485 ft.
The Texas Company's No. 1 Leesville ..... Location.

PLAQUEMINE PARISH

Humble Oil & Ref. Co.'s No. 1 Cockrell-Moran, Lake Grand Ecaille ..... Total depth 1,739 ft.; 7-in. casing 1,716 ft.
Humble Oil & Ref. Co.'s No. 1 Lake Washington, Lake Grand Ecaille ..... Drlg. shale and sand 4,320 ft.
The Texas Company's No. 4 State, Garden Island Bay ... Derrick.

ST. LANDRY PARISH

Elbof Exploration Co.'s No. 1 Ledoux, Eunice ..... No report.
Herbert-Baker Oil Co.'s No. 1 Fisher, Sec. 10-3S-4e ..... No report.
Gulf Refining Co.'s No. 3 Gaudet, Port Barre ..... Drlg. 2,096 ft.
Gulf Refining Co.'s No. 2-A Hoskins, Port Barre ..... Drlg. 875 ft.
The Texas Company's No. 5 Botney Bay, Port Barre .... Drlg. 2,626 ft.
The Texas Company's No. 6 Botney Bay, Port Barre .... Drlg. sandy shale 3,496 ft.

ST. MARTIN PARISH

The Texas Company's No. 1 fee, Hager Dome ..... No report.
The Texas Company's No. 3 fee, Hager ..... Location.
The Texas Company's No. 2 St. Martin ..... See Bayou Bouillon.
The Texas Company's No. 1 Iberville, Hager ..... No report.

ST. MARY PARISH

Pure Oil Co.'s No. 2 Wax Lake, Sec. 12-17s-9e ..... Rigging.
Vacuum Oil Co.'s No. 1 Zenor, Patterson ..... Drlg. sandy shale 4,539 ft.

TERREBONNE PARISH

Charles Paggi's No. 2 Evergreen, Sec. 145-15s-16e ..... No report.
The Texas Company's No. 4 State-Bay St. Elaine ..... Rig.
The Texas Company's No. 1 La. L. & E. Co., Bay Junope.. Location.
The Texas Company's No. 2 State, Lake Pelto ..... Location.
The Texas Company's No. 3 State, Lake Pelto ..... Oil sand 4,278-4,389 ft.; tested dry.
The Texas Company's No. 2 State, Caillou Island ..... Set screen 3,292 ft.; bailed salt water.
The Texas Company's No. 3 State, Caillou Island ..... Location.
The Texas Company's No. 3 State, Lake Barre ..... Oil sand 3,863 ft.; cem. casing 3,836 ft.
The Texas Company's No. 4 State, Lake Barre ..... Location.
The Texas Company's No. 3 La. L. & E. Co., Four Isle ... Location.

SOUTHWEST TEXAS

(Continued from Page 54)

Posey, 450 feet northeast line, 150 feet northwest line of lease, in the J. R. Robinson Survey; total depth 2,606 feet; swabbed 1,000 bbls. per day.

Trinity Drillers' No. 1-D Miller, 150 feet north line, 150 feet west line of D lease, in the J. R. Robinson Survey; total depth 2,045 feet; 400 bbls. per day, swabbing.

ABANDONED TESTS

Randado Pool—Jim Hogg County

Magnolia Petroleum Co.'s No. 1 Weil, Block 2, Survey 5, 660 feet north line, 349 feet east line; total depth 3,530 feet; abandoned.

Albercas Pool—Webb County

O. W. Killam's No. 1 Bruni, 575 feet north line, 238 feet east line, Albercas grant, Block 33; total depth 2,040 feet; junked and abandoned.

Magnolia-Cole—Webb County

Magnolia Petroleum Co.'s No. 4 Brennan-Benavides, in the Mariano Arispe grant, corner Blocks 16-17-52-53, Myrtle E. Hale subdivision; total depth 3,214 feet; abandoned.

Darst Creek—Guadalupe County

J. S. Abercrombie and Harris Oil Co.'s No. 4 Thomas Dix, 300 feet north of No. 1, in the J. R. Robinson Survey; dropped from reports until work is resumed. Same company's No. 5 Thomas Dix, 300 feet north of No. 3 in the J. R. Robinson Survey; dropped from the reports until work is resumed. Same company's No. 6 Thomas Dix, 300 feet north of No. 2, in the J. R. Robinson Survey; dropped from reports until work is resumed.

Humble Oil & Refining Co.'s No. 1 Baker, in the J. C. Darst Survey, 150 feet north line, 183 feet west line of tract; dropped from reports until work is resumed. Same company's No. 2 Baker, 472 feet north line, 183 feet east line of tract; dropped from reports until work is resumed.

Trinity Drillers' No. 1 I. S. White, 1,388 feet north line, 750 feet east line, in the M. Miller Survey; dropped from reports; duplication.

NEW LOCATIONS

Jennings Pool—Zapata County

Killam-Duggan's No. 13 Cuellar, 1,011 feet northwest corner, 150 feet southwest line, Survey 278; rigging up.

Kohler Pool—Duval County

E. H. Buckner's No. 2 Peters, 1,980 feet south line, 660 feet west line, Survey 161; rigging up.

Darst Creek—Guadalupe County

Magnolia Petroleum Co.'s No. 1 Roamel, 150 feet each way out of southeast corner of M. E. Roamel 50 acres, center of J. R. Robinson Survey; location.

The Texas Company's No. 3 Posey Baker, 1,510 feet from northwest line, 300 feet southwest line of tract, offset to Humble's No. 9-A Denman, in the J. R. Robinson Survey; location. Same company's No. 5 Henry Willie, 150 feet from north and east line of tract, in the J. C. Darst Survey; location. Same company's No. 6 Henry Willie, 150 feet from south and west lines of tract, in the J. C. Darst Survey; location.

DRILLING ACTIVITY

Pettus Field—Bee County

Union Producing Co.'s No. 5 George Ray, 1,750 feet southeast line, 250 feet northeast line of survey, in the Thomas Anson Survey, northeast offset to No. 1 McKinney, 3 miles northeast from Pettus; total depth 3,975 feet; swabbing in.

Lasater Pool—Brooks County

Houston Oil Co.'s No. 1 Holbein-Wormser, in the Palo Blanco de Maguellas Survey, 330 feet north line, 6,540 feet east line, direct offset 660 feet south of No. 1 Lasater; total depth 3,800 feet; drilling; tested sand at 4,500 feet but no showing.

Nursery Pool—Victoria County

Humble Oil & Refining Co.'s No. 3-A Jay J. Welder, in the D.L.&C. Survey, 1,634 feet southeast line, 736 feet southwest line, 1½ miles from Nursery; drilling below 6,000 feet.

Dobrowolski Pool—Bexar County

Penn-Tex Oil Co.'s No. 1 Dokrowolski, 150 feet from south line, 150 feet from east line of west 67 acres of Dobrowolski 147-acre tract, in the M. Menchaca Survey; total depth 400 feet; shut down.

Bruner Field—Caldwell County

Humble Oil & Refining Co.'s No. 4-B J. R. Tiller, 180 acres south central part of lease, in the J. Hinds Survey; location.

Darst Creek—Guadalupe County

Empire Gas & Fuel Co.'s No. 1 Knoblock, 150 feet northeast and southeast lines of 40-acre tract, in the J. R. Robinson Survey; total depth 2,000 feet; drilling in shale. Same company's No. 1 Henry Willie, 150 feet north line, 150 feet west line of tract, in the J. Darst Survey; spudded in.

Gulf Production Co.'s No. 7 Dix-McKean, 150 feet from southeast corner of tract, in the J. R. Robinson Survey; total depth 2,600 feet; drilling in. Same company's No. 2 C. Anderson, 450 feet north line, 750 feet east line of tract, in the J. Darst Survey; total depth 2,558 feet; set casing.

Humble Oil & Refining Co.'s No. 4 D. D. Baker, 700 feet from east line, 550 feet from north line of tract, in the J. C. Darst Survey; total depth 2,554 feet; cemented casing. Same company's No. 10-A Denman, 1,100 feet from south line, 1,250 feet from west line of tract, in the A. S. Emmett Survey; total depth 1,500 feet; drilling in shale. Same company's No. 11-A Denman, 1,921 feet west of southeast corner, 150 feet north-south line of survey, in the A. S. Emmett Survey; derrick. Same company's No. 1 Sally Wilson, in the J. C. Darst Survey, 150 feet from north line, 183 feet from west line; location. Same company's No. 4 Sally Wilson, 500 feet east of No. 2, 150 feet north line of tract, in the Jacob Darst Survey; derrick. Same company's No. 1 Yates-Wilson, 150 feet from north and west lines of tract, in the Jacob Darst Survey; location.

Magnolia Petroleum Co.'s No. 7 Thomas Dix, 450 feet from southwest and northwest lines of 50-acre tract, in the J. R. Robinson Survey; total depth 2,533 feet; set casing. Same company's No. 1 L. V. Echols, in the James Hodges Survey, 150 feet to northwest and southwest lines of farm, 3,650 feet to southwest, 3,220 feet to northwest of survey; total depth 2,715 feet; shut down; water. Same company's No. 2 L. V. Echols, in the James Hodges Survey, 150 feet to southwest and southeast lines of lease, 300 feet southeast of No. 1 well, 164½-acre tract; total depth 2,845 feet; shut down; dry. Same company's No. 2 S. M. Roamel, 150 feet each way from northeast corner of 40-acre tract, in the James Hodges Survey; location.

Simms Oil Co.'s No. 3 C. W. Manford, 300 feet southwest of No. 1, 225 feet from southeast line; location.

The Texas company's No. 4-B Knoblock, 150 feet northwest line, 455 feet southwest line, B lease, in the J. R. Robinson Survey; total depth 1,600 feet; drilling in shale. Same company's No. 5-B Knoblock, 626 feet northeast of No. 4-B; total depth 400 feet; drilling. Same company's No. 6-B Knoblock, 300 feet northeast of No. 5-B; total depth 1,250 feet; drilling in shale. Same company's No. 2-A Knoblock, 450 feet southwest line, 150 feet southeast line of A lease, in the J. R. Robinson Survey; total depth 2,160 feet; drilling in Taylor marl. Same company's No. 3-A Knoblock, 626 feet northeast of No. 2-A; total depth 600 feet; drilling. Same company's No. 4-A Knoblock, 300 feet northeast of No. 3-A; total depth 1,140 feet; drilling in shale.

United North & South Development Co.'s No. 3 P. Roamel, in the J. R. Robinson Survey; total depth 1,890 feet; drilling in shale.

Cole Pool—Duval County

Cole Petroleum Co.'s No. 68 Rosa Benavides, 660 feet northeast line, 660 feet northwest line, Cole subdivision, Mariano Arispe grant, Block 11, Survey 14; total depth 950 feet; drilling; set 12-inch casing at 105 feet.

Kohler Pool—Duval County

Simms Oil Co.'s No. 9 Dinn, 660 feet east line, 660 feet south line of NW SE of Survey 143; rigging up.

Everett Suladie's No. 1 Peters, 165 feet south line, 230 feet west line, Survey 33; total depth 2,245 feet; testing.

Allied Gas Co.'s (Pure) No. 1 Dinn, 1,500 feet south line, 1,500 feet east line, Survey 668; total depth 2,670 feet; sand 2,560 feet; salt water sand 2,640 feet; drilling.

Humble Oil & Refining Co.'s No. 41 Kohler, 2,970 feet south line, 330 feet east line, Survey 165; location. Same company's No. 43 Kohler, 825 feet north line, 165 feet west line, Survey 169; rigging up.

Schoolfield-O'Byrne—Duval County

C. E. Long's (Shell) No. 5 Hahl, 150 feet north line, 630 feet east line, Block 26, Survey 250; location.

Roma Pool—Starr County

The Texas Company's No. 1-B V. C. de Guerra, 150 feet south line, 150 feet west line of north 1,173 acres, Share 92, Porcion 68 of Partition Porcion 67-68-69-70-71-72, Jurisdiction of Mier; total depth 2,300 feet; drilling.

Carolina-Texas—Webb County

George S. Marshall's No. 2 Webster, 810 feet south line, 1,170 feet west line, Survey 684; total depth 2,122 feet; drilling.

W. R. Shankle's No. 2 Webster, Survey 684, 1,170 feet west line, 150 feet south line; rigging up.

Cole Pool—Webb County

O. W. Killam's No. 18 Bruni, total depth 2,436 feet; sand 2,361-66 feet, gas; sand 2,403-12 feet, gas, oil odor; sand 2,434-36 feet, oil and gas odor.

E. H. Buckner's No. 1-A Rosa Benavides, 660 feet northwest line, 660 feet northeast line, Cole Petroleum Co. Subdivision, Mariano Arispe grant, Block 5, Survey 14; total depth 1,613 feet; sand 1,609-13 feet; salt water; standing.

W. E. May's No. 1 Volpe, 660 feet east line, 840 feet south line, Block 15, Survey 694; total depth 2,300 feet; set 6⅝-inch casing at 2,279 feet; sand 2,279-84 feet; shale 2,284-95 feet; sand 2,295-2,300 feet.

Magnolia Petroleum Co.'s No. 2 King-Harper, Block 2, Survey 323, 660 feet north and east lines; location.

Jennings Pool—Zapata County

W. R. Shankle's No. 1 E. Gutierrez, 150 feet northeast line, 3,014 feet northwest line, share 4, Fansley Partition, Comitas grant; derrick.

Livingston & Twiss' No. 1 Trevino, 150 feet north line, 150 feet west line, Block 7, Survey 66; rigging up.

Claggett & Blair's No. 3 Trevino, 500 feet east line, 150 feet north line, Block 1, Survey 66; location.

A. L. Edgington's No. 1 Trevino, 150 feet south line, 150 feet east line, Block 26, Survey 412; total depth 1,250 feet; testing; set 6⅝-inch casing at 1,238 feet; sand 1,234-37 feet; rock 1,239-42 feet; rock 1,242-46 feet; sand 1,246-50 feet.

O. W. Killam's No. 20 Cuellar, total depth 1,534 feet, coring.

O. W. Killam's No. 17 Cuellar, 600 feet north line, 940 feet east line, 160-acre Cuellar tract out of 1,772-acre Cerrito Blanco grant; derrick.

R. F. Blankenship's No. 2 Garza, Block 2, Survey 413; total depth 1,000 feet; drilling.

R. F. Blankenship's No. 2 Montemayor, 820 feet east line, 150 feet north line, Block 7, Survey 64; total depth 500 feet; drilling.

CANADIAN FIELDS

(Continued from Page 62)

366 feet in the lime, bailing was commenced and about 1,500 feet of drilling fluid removed, when the well blew into big production. An elbow of pipe was burst by lime fragments, after which the well gradually cleared itself of formation. Later the wet gas flow, measured at 32,500,000 feet, was run through the separator for a production test. According to J. H. McLeod, production manager of Imperial Oil, Ltd., who had charge of the drilling, Lowery No. 1 is the largest gas well yet drilled in the Turner Valley. No official estimate of crude naphtha recovery will be made public for some time, but unofficial estimates place it around 600 bbls. a day.

Lowery Petroleums' No. 1 was drilled on acreage leased by Lowery Petroleums, Ltd. from the Calgary & Edmonton Corp., on one-eighth royalty. The development contract between Lowery Petroleums, Ltd. and Imperial Oil, Ltd. allows the Imperial company the cost of drilling plus 10 per cent out of the first production, after royalty is deducted. The net revenue from further production is to be divided 50-50 between the two companies. The agreement calls for two wells to be drilled by Imperial Oil, Ltd. to depths of 4,500 feet or to production of at least 25 bbls. a day; additional wells to be drilled in accordance with the requirements of the Calgary & Edmonton Corp.'s lease. Lowery Petroleums' No. 2 will be started almost immediately. Drilling of No. 1 was started on July 24, 1929, rotary tools being used; and the result seems to dispose of the theory that failure of other deep tests in the South Turner Valley was due to rotary mud forced into the limestone sealing off the gas.

Baltac Oils, No. 1, LSD 13, Section 20-19-2w5, is drilling 274 feet in the lime

at 5,756 feet depth, with some additional gas production, and will probably make a further production test. Home's No. 1, LSD 10, is reported making around 400 bbls. a day since it blew back into production.

In the central Turner Valley, Dalhousie Oil Co.'s No. 7, LSD 11, Section 18-20-2w5, is standing cemented in the top of the lime at 5,005 feet.

South Turner Valley

In South Turney Valley several tests by independent companies are drilling or preparing to drill in the lime. Four are in Section 20-19-2w5, where Imperial Oil, Ltd. got big production with the Home and Associated wells.

Outside Section 20, there are four tests in the lime. In Section 4-19-2w5 Mill City Petroleums' No. 1, ISD 14, drilling 120 feet in the lime at 4,630 feet has encountered a strong gas flow and is apparently nearing production.

On the eastern fold of the structure, Homestead Oils' No. 1, LSD 5, Section 1-19-2w5, drilling with cable tools 110 feet in the lime at 4,390 feet depth got a wet gas flow estimated 1,500,000 feet a day, and is going deeper. Calmont Oils' No. 11 spudded in. Calmont's No. 12 is rigging up. Commonweath Petroleums' No. 2, LSD 7, Section 9-19-2w5, is reported taking a very small production from the Dalhousie sands at 4,420 feet. Pending results of adjacent tests, no further work is being done, but if these tests get deep production, No. 2 may be deepened or a new test drilled to the lime.

Central Turner Valley

In the Central Turner Valley, Spooner Oils, Ltd. is reported locating a new test in the same area as Spooner's No. 1 producer.

In Section 1-20-3w5, Okalta Oils' No. 2, LSD 8, is drilling near the top of the lime at 4,470 feet and taking some crude oil production from the Home sand; the well is reported swabbing around 75 bbls. a day.

New McDougall-Segur Oil Co.'s No. 4, LSD 14, Section 12-20-3w5, is resuming after running 8-inch casing to 3,925 feet. The test is close to the lime.

North Turner Valley

In the North Turner Valley, Anaconda Oil Co.'s No. 1, LSD 16, Section 22-20-3w5, is at 2,610 feet and drilling after cementing 13⅜ casing at 2,350 feet. Absence of faulted conditions in this well indicates a prospect of getting the lime slightly below 4,000 feet, as against 5,800 in Model's No. 1 in the same section.

Moose Dome Oil Show

On the Moose Dome, northwest of the Turner Valley, Moose Oils' No. 1, LSD 16, Section 29-22-6w5, is resuming at 2,276 feet after a temporary shut down to change cable. At this depth the test had a show of crude in the Devonian lime. Analysis indicated a 42.3 Baume crude, showing 71 per cent of gasoline, 14 per cetn kerosene, 14 per cent fuel oil grades and 1 per cent residue. It is an amber-greenish crude, quite similar to some of the earlier light crudes of the Turner Valley, and is thought to have filtered from a porous horizon lower in the Devonian, where commercial production may be looked for around 2,500 feet. Transit Oils, Ltd., recently organized at Calgary, has leased 1,000 acres on the Moose Dome from Moose Oils, Ltd., and is preparing to drill a test, midway between Moose's No. 1 and Herron's No. 1 before May 1. Officers of Transit Oils, Ltd., are: President, E. L. Pilling; vice president and manager, D. S. Matson; secretary-treasurer, Paul M. Baker.

On the Highwood structure, Western Alberta Oil Co.'s No. 1, LSD 11, Section 7-17-2w5, is resuming at 40 feet in the lime at 3,178 feet depth, after rebuilding derrick. The derrick was laid flat by a wind storm some weeks ago. Following abandonment some time ago of Imperial Oil's Highwood No. 1, further north and west, after a fault was encountered at the expected producing horizon, Western Alberta's No. 1 is the first test to get into the lime, and results are being watched for with keen interest. It is one of two tests on the southern end of the Highwood structure, the recent drilling having pretty well concentrated on the northern end. Hudson's Bay Oil & Gas Co.'s No. 1, LSD 8, Section 1-18-3w5, is unloading drilling equipment to resume at 1,240 feet.

Stonewall Oil Co. backed by Edmonton interests is reported preparing to start a test on the Prince of Wales "E.P." ranch on the extreme southern end of the Highwood structure. This company some time ago took over 120 acres on leases in Section 1-17-3w5, from operators who had leased from the government before the Prince secured ownership of the surface rights. It is reported that the 120 acres include the land on which the royal rancher's barns are located. The company is planning to spud in its No. 1 test this spring. Following the announcement of the purchase by the Stonewall Oil Co. there has been some discussion as to whether the Prince of Wales had any greater rights than an ordinary citizen in respect to mineral leases on the land of which he owned the surface rights, or whether the Dominion government can give him any additional protection. The Prince is, however, understood to be rather eager to see a test made, though negotiations now in progress may result in an exchange of the present acreage for an equal tract further north and west, and somewhat more favorably located on structure. The Dominion government some time ago withdrew the remainder of the ranch from further leasing.

On the Morley Reserve structure, Wabash Oils' No. 1 is about 200 feet in the Devonian limestone at 3,035 feet depth and making slow headway against heavy gas pressure. The well is reported to blow heavily for some hours, gradually dying down, and resuming after a few hours. The wet gas flame from the well at its highest burns about 60 feet. A test of gas production and naphtha content will likely be made, to determine whether to put the well on steady production or to drill deeper.

On the Moose Mountain structure, Signal Hill Oil Co.'s No. 2, LSD 9, Section 34-23-5w5, is reported drilling close to 3,800 feet with slight traces of gas but no commercial production.

Red Coulee Field

In the Red Coulee Field, southern Alberta, Vanalta Oils' No. 2, LSD 3, Section 4-1-16w4, is reported at 2,477 feet and swabbing between 40 and 60 bbls. a day from the Vanalta sand. The well has heavier gas pressure than Vanalta's No. 1 and it is claimed will make around 120 bbls. a day on the pump. It is said the well is making no water and the gas shut-off in the Sunburst sand is complete. The crude is around 32 gravity, similar to No. 1. The test may be drilled a little deeper into the sand. It is 440 feet due west of No. 1. Later swabbing indicates production is increasing a little.

On the Montana end of the structure, Monalta Oil Co.'s No. 2 Buckley, Section 1-37-4w, is reported at 2,342 feet and has some gas. Monalta's No. 3, same section, is reported rigged and ready to spud. John Thomas' No. 1, Section 1-37-4w, is reported drilling considerably below 200 feet. Cosmos Petroleum Co.'s No. 1, Section 2-37-4w, made a further water shut-off at 2,490 feet and is reported drilling below 2,510 feet with some oil in the hole. Mid-Continent's No. 1 Farbo is reported producing 59 bbls. a day with pumping equipment not yet in place and should do better on the pump. Mid-Continent's No. 2 Farbo, Scetion 2-27-4w, is reported drilling around 700 feet.

Some 10 new tests are under way or likely to be started soon. Southern Alberta Exploration Co.'s No. 1, on the Canadian side, LSD 8, Section 3-1-16w4, will be drilled under contract by the Union Drilling Co. of Calgary. The contract calls for a 2,500-foot hole of satisfactory production. Cable tools will be used and the test will spud in this month. Derrick is up and casing is being hauled. The location is 1½ miles north of the Vanalta producers.

Devonshire Oils, Ltd., of Calgary, which recently subleased acreage from Alberta Pacific Consolidated Oils, Ltd., has let contract for its No. 1 well in LSD 3-4, Section 10-1-16w4, about three-quarter of a mile northwest of the Vanalta producers. The test will spud in April 1. Cable tools will be used. John Antolch, formerly with Okalta Oils, Ltd., in the Turner Valley Field, is field superintendent. Officers of the company are: President, H. G. Glass, Calgary; vice president, William A. Buxton, Calgary; secretary-treasurer, Sydney R. Vallance, Calgary; directors, Fred A. Dowler, F. W. Hope, Calgary; Dr. J. O. Baker, Edmonton; Fred H. Mensinger, Vulcan; John M. Jangen, Arrowhead. Dalco Oil & Gas Co.'s No. 1 is being located about a mile north and slightly east of the Vanalta wells, to spud in April 1; the company's program calls for four wells. Its acreage was acquired from holdings of the Canadian Western Natural Gas, Light, Heat & Power Co. of Calgary. Eiborne Oils, Ltd., of Calgary, has located its No. 1 test in Section 6-1-16w4, about 1½ miles northwest of Vanalta's No. 1. Charles E. Meadows of Calgary is president and managing director of the company. Sunshine Oils', Ltd., has spotted its No. 1 test in LSD 7, Section 15-1-17w4.

Beverly Oil Co. recently incorporated under Ontario charter and financed by Eastern Canada interests, will drill its No. 1 test in LSD 3, Section 23-1-17w4, on the Red Coulee structure. Its No. 2 has been spotted on the Milk River structure in LSD 4, Section 5-5-17w4. Tests are to spud in April 15. Commonwealth Petroleums' No. 1, Section 3-1-16w4, is reported working on derrick and unloading equipment.

With three producing wells aggregating somewhat less than 300 bbls. a day, five other tests more or less approaching completion and a score located or preparing for work, the Red Coulee Field is already well served with pipe lines. Maple Leaf Oil & Refining Co. is reported to have completed its 4-inch oil line from Vanalta's No. 1 producer to its refinery at Coutts. Illinois Pipe Line Co. has a line from the vicinity of Mid-Continent's No. 1 producer to railhead at Sweetgrass. The Maple Leaf line, though it takes production from wells in Alberta and delivers its crude to a refinery north of the international boundary, is laid almost entirely on the Montana side. This was done to save duty on the pipe, which if laid on the Canadian side would have been subject to a substantial tariff.

Border Drilling Operations

Further east, in the Milk River area, Capitol Oil & Gas Co.'s No. 1-A, LSD 16, Section 32-1-12w4, is at 3,098 feet, cleaning out and swabbing, with some gas indicated.

A structure test is being drilled on the Sam Rombough farm 1½ miles southeast of Taber.

In the Lomond district, Hudson's Bay Oil & Gas Co.'s Lomond No. 2, Section 23-17-18w4, is preparing to resume at around 925 feet.

In the Acadia Valley district near Oyen, Fuego Oils' No. 2 will be started next month in Section 34-25-4w4. Fuego's No. 1, same section, is being put in shape for production. Shareholders held their annual meeting recently when the followed officers were re-elected: president, E. E. Law; managing director, A. O. McArthur; secretary treasurer, Robert Campbell; directors, Dr. H. B. Miner, Miss Agnes McPhail, Mrs. M. McGregor.

Wainwright Field

In the Wainwright Field, east-central Alberta, there are some signs of a renewal of activity. It is unofficially reported that Alberta Pacific Consolidated Oils, Ltd., of Calgary, in association with interests representing the Shell Oil Co., will do some work in the western section known as the Grattan-Irma-Fabyan area. Alberta Pacific Consolidated Oils had some acreage and started a test in this area when it was first organized, in the latter days of the first Calgary boom. and recently some geological work has been done there by interests identified with the Shell Oil Co.

Senior Oils, Ltd., in conjunction with a syndicate headed by Major F. N. Devlin of Edmonton and representing English capital, is reported securing acreage in the Wainwright Field and planning a test as part of a program involving five tests on five different Alberta structures.

Peninsular Petroleum's No. 1, LSD 16, Section 20-45-6w4, is reported resuming after setting surface casing at 108 feet. J. W. James, formerly of Oklahoma, is in charge. The Peninsular company is reported to have optional British Petroleums' Nos. 2 and 4. No. 2 is at 2,038 feet with oil and gas showings, and No. 4 is at 2,072 feet with a production of 50 bbls. of heavy crude and some gas. Negotiations are also reported for a merger of Peninsular Petroleums, Ltd., and Wainwell Oils, Ltd. Wainwell Oils, Ltd., has two producing wells and one large gasser shut in, and also controls the Wainwell Refining Co. with a small plant in the field equipped to handle the Wainwright heavy crudes.

Weymarn Petroleums, Ltd., which has been doing considerable structure testing. is locating its commercial test in or near Section 14-47-5w4, and is reported moving in equipment. Bethwain Oils' No. 2, LSD 9, Section 4-45-6w4 is reported planning to start No. 3 as soon as No. 2 is finished. Sasko-Wainwright Oil & Gas Co.'s No. 2, Section 19-45-6w4, will probably start drilling this month. Associated Refineries, Ltd., which takes production from four heavy crude producers in the Wainwright Field, is preparing to handle additional production from two new wells, and to make deliveries of crude for drilling purposes. Onalta Oils' No. 1, LSD 8, Section 20-45-6w4, has recovered tools and run casing preparatory to resuming at 1,925 feet.

In the Ribstone Field, Oxville Oil & Gas Co.'s No. 1, LSD 15, Section 10-46-2w4, is reported resuming on top of the sand but has not yet developed commercial production.

Alberta Oil Regulations

With the transfer of natural resources from the federal government to the province of Alberta, the latter will shortly have control of oil and gas development within the province. At a recent meeting the Alberta Oil & Gas Association appointed a committee to confer with representatives of the two governments and considerable progress has been made in drafting regulations. The association committee comprises S. G. Porter, S. E. Slipper, J. H. McLeod, S. J. Davies, George H. Cloakley, R. Van A. Mills, Clarence Snyder, H. Baxter, Eric Harvie, W. S. Herron, A. C. Galbraith and F. Graham. The operators are especially interested in seeing that a fully qualified engineer, familiar with actual drilling conditions in the province, is appointed director to administer the regulations.

Reports that the Dominion government contemplated the imposition of a royalty of 5 per cent on Alberta oil production have been in circulation. Provision was made in the federal regulations for a royalty on production, but in view of the experimental state of the industry in Alberta no steps appear to have been taken to render these provisions effective. A tentative arrangement was made whereby royalties would be collected after July 1, 1930; but Charles Stewart, federal minister of mines, recently announced that in view of the impending transfer of natural resources to the province he would recommend to the government that the royalty be left inoperative.

Under the new provincial regulations some changes are expected. Among the probable innovations is the establishment of a department to record the ownership of fractional royalty rights, following the system in the United States. It is understood that in future leases granted by the provincial government a clause will be included requiring producing companies to sell unrefined oil or crude naphtha to farmers at the well head at prices to be fixed from time to time by reuglation. This is apparently intended to apply to the Turner Valley, where owners of surface rights have been accustomed to use the unrefined product in tractors, engines and even motor cars instead of refined gasoline.

Ontario Drilling

I nthe Ontario fields, Olga Oil & Gas Co.'s No. 2 deep test in the Bothwell Field, Kent County, is reported to have drilled through the Trenton limestone into the Potsdam sand and shut down

around 3,900 feet. This is the first thorough test of the Trenton formation in the Bothwell Field. No oil was encountered in the Trenton, but in the Potsdam water was struck which is claimed to have strong mineral qualities and which is being submitted to a government analyst. Acme Gas & Oil Co.'s shallow test on the John Vogler farm shows a fair pumping well at around 275 feet. On the Moraviantown or southern side of the Thames, Basic Resources' No. 1 is also reported a fair pumper at 300 feet. Additional shallow drilling will be done in both areas.

In Dawn Townsite, Lambton County, Union Natural Gas Co.'s No. 45, Lot 19, Concession 1, is reported drilling around 1,300 feet. In Dover Township, Kent County, Acme Gas & Oil Co.'s No. 3 deep test and Olga Oil & Gas Co.'s No. 4 have been delayed by high water, but are again under way.

In Mosa township, Middlesex County, Southern Ontario Gas Co. is drilling around 1,600 feet on a deep test.

In Colchester Township, Essex County, a test by Acme Gas & Oil Co. and associated interests near Arner is drilling between 1,300 and 1,400 feet.

In Elgin County near Port Bruce a shallow test drilled by W. J. Hussey of Petrolia on the Hugh & John Stephens farm is reported to have a good show of crude oil. Drilling operations were carried on in the Port Bruce area some years ago, but though oil showings were encountered, no commercial production was secured.

CALIFORNIA FIELDS

(Continued from Page 61)

Beach, Seal Beach, Dominguez, Rosecrans, Inglewood, Potrero and Huntington Beach fields, has been revived and recent leasing indicates the probability of additional exploration. Jack M. Sickler and associates of Pasadena have recently leased up an island in Newport Bay, embracing approximately 50 acres. It is the present intention to test out this area, which is located about 3 miles west of the Newport Field, some time within the next 90 days. Considerable acreage has also been leased on the Irvine Ranch, located further inland between Newport and Balboa, where a second test is contemplated. The deep test to be drilled at Newport Bay will prove of considerable interest in view of previous experience as to the heavy tar zone located in the Newport Field has seemed to lure wildcatters for many years without success.

Coyote

Although the Standard Oil Co. has reduced its daily production in the West Coyote Field of Los Angeles basin in conformity with the general curtailment program, preparations are being made to start several new holes in the near future. On the Emery lease, the Standard has started rig construction for two new wells, Nos. 46 and 47. On the Murphy property the company has begun constructing new rigs for Nos. 103 and 104. It will be recalled that the Standard recently discovered a second deep zone in the West Coyote Field when No. 43-A Emery was brought in flowing 1,175 bbls. per day from 5,382 feet. It is not the present intention to carry the four new wells down to the deep zone as both the recently discovered Emory horizon and the 99 zone are being held back as a future reserve. The Standard's potential daily production at West Coyote approximates 10,950 bls., the Murphy lease being capable of producing 6,750 bbls. daily and the Emery lease, 4,200 bbls. daily. It must be remembered of course that both of these properties have deep zones, the potentiality of which is not reflected in these figures.

The Continental Oil Co. has just finished running a string of 9⅝-inch casing in No. 22 Selover, a new well in the Seal Beach of the Los Angeles basin, and this project should be finished in the very near future. No. 23 on the same lease was rotating ahead a few days ago in a gray sandy shale at 7,371 feet. In the Richfield district, Howard, Hathaway & Burroughs have succeeded in finishing No. 1 Atwood as a consistent 120-bbl. pumper from 4,734 feet. This well was originally finished late in February, the initial production beind recorded as 130 bbls. daily. The Continental Oil Co.'s No. 3 Santa Fe, finished several weeks ago, pumping 340 bbls. initially from 4,550 feet, is holding up in good shape, present production approximating 332 bbls. per day. The Continental spudded in No. 4, a new well on the Winann lease in this field during the week, and this project, located in proven territory, should be finished some time during the course of the next three months.

Playa Del Rey

Several new wells are getting under way in the Playa Del Rey Field of Los Angeles basin and still more additional work is contemplated for the immediate future if the Los Angeles City Council can be persuaded to take definite action on pending permits. The Ohio Oil Co. is leading the way in this field, which it discovered several months ago, by driving piling for No. 1 Dickenson and starting rig construction for No. 2 Del Rey. In addition to this project the Ohio has one producing well shut in and two other drillers under way on the Recreation Gun Club lease. Featherstone and Preston have staked location for their first well at Playa Del Rey and work has also been started by Eaton & Hurst, who will drill at 38th and Washington. The Union has just spudded in No. 1 Del Rey in Section 28-2-15, and the outcome of work on this well will be watched with considerable interest because of its location structurally. The eastern end of the Long Beach Field was forced into the limelight again this week when the Plymouth Oil Co. successfully finished No. 9 Signal flowing 1,695 bbls. of clean 30.1 gravity oil and 2,700,000 feet of saturated gas daily. The natural gas from this well is especially rich as it has been yielding 2½ gallons of natural gasoline to each 1,000 feet of gas treated. This new well, located at 20th and Ohio Street, was carried down to 6,889 feet and finished with a 5¾-inch liner carrying 1,353 feet of perforated. It is flowing under a pressure of 890 pounds on the casing and 235 pounds on the tubing. No. 1 Higgins, a new well finished by the Higgins Brothers, Synd., last week, is still holding up in good shape, current production approximating 660 bbls. daily from 7,020 feet. The Delaney Petroleum successfully finished No. 4 Wellington a few days ago but the project is only doing 120 bbls. of clean 28.9 gravity oil per day from 7,350 feet.

MICHIGAN FIELDS

(Continued from Page 60)

salt water are struck. It may be carried to the Dundee. The well is located NW SW, Section 9-10-16, Muskegon Township.

Water sands have been struck in the Continental Gas and Oil Co.'s No. 20 well on the City of Muskegon lease, SE SW, Section 22-10-16, Muskegan Township, at 1,850 feet and the well may soon be abandoned as a duster. It was dry in the upper Traverse despite two shots of nitroglycerin.

The Blue Arrow Petroleum Corp.'s No. 2 Workman well, NW SE, Section 8-10-16, Muskegon Township, is nearing completion in the Dundee formation after having a good show of oil in the lower Traverse but little gas for which it was deepened from an original upper Traverse oil producer.

The Reed Oil Co., local independent operating company, has resumed drilling on its No. 2 Albert Heinz well in Section 8, Muskegon Township, as the first deep test well in the proven field, according to J. B. Reed, vice president of the company. The well is being drilled day and night and has reached a total depth of about 2,110 feet. Some increase in gas and oil has been encountered in the Dundee formation below the original production of the well. The No. 2 Heinz well is located NW SE, Section 8-10-16, Muskegon Township.

Another well which also may be made a deep test is the No. 2 Albert Young well of Mrs. C. G. Marsh, trustee, located SE NE, Section 12-10-17, Laketon Township.

The state department of conservation will do all in its power to stop swabbing of wells in the Muskegon oil field in violation of the non-swabbing order issued December 11, 1929, by George R. Hogarth, supervisor of wells. This is the statement made by Floyd R. Freye, state supervisor of oil and gas conservation, who spent several days in the Muskegon Field.

Gas at Manistee

A natural gas blowout occurred late last week in a wildcat well in Grant township, Mason County, about 8 miles south of Manistee. The new well is of no commercial value as it stands although it indicates that there may be a large and profitable field of gas at a shallow depth in this part of the county.

Salt water was struck yesterday in Edward DuVall's latest Oceana County wildcat well and drilling operations have been suspended until it is determined whether to drill deeper or plug the hole. Water was struck at 2,060 feet after the well had been cased in the top of the Dundee at 1,995 feet. It is located on the William Schultz property, NW NW, Section 12-15n-18w, Golden Township.

The North American Trust Co.'s No. 2 Iroquois Oil Co. well near Rochdale Inn, Fruitvale, is more than 1,500 feet deep and nearing the upper Traverse formation. It is located NE NW, Section 25-13n-17w, Grant Township, Oceana County.

The Red Rock Oil and Gas well on the Skidmore lease, SW NE, Section 19-15n-18w, Golden Township, near Silver Lake, is drilling ahead at about 700 feet deep.

LA.-ARK. FIELDS

(Continued from Page 57)

oil showing and now is waiting for 6-inch to set in order to make a test.

Richland Area

Two failures and a small producer were the crop in the Richland gas area this week. Industrial Gas Co.'s No. 1 T. R. Hodge, Section 7-16-7, an edge well in the northeast corner of proven territory was junked at 2,874 feet and International Gas Products Co.'s No. 1-B Beck, Section 36-16-6, in the southeastern corner of the proven territory was dry at 2,539 feet. Palmer Corp.'s No. 1-A F. N. Boykin, Section 20-17-6, an edge well north of Alto, gauged 9,000,000 feet of gas at 2,446 feet. Nichols & Wider abandoned No. 1 Clark, their Natchitoches Parish wildcat in Section 10-10-8 as a salt water hole at 2,820 feet.

Interstate Natural Gas Co. completed a wildcat producer north of Union Parish production in the Monroe gas area with No. 26 Fee, Section 33-20-3, which made 8,000,000 feet open flow from 2,201 feet, corrected depth, and Lyons Gas Co.'s No. 2 Jones, within limits of proven area, in Section 11-20-3, made 4,000,000 feet, total depth 2,170 feet. Sarepta district of Webster Parish, just southeast of Carterville production, had a dry hole and a small pumper and Cotton Valley's one completion was a failure. Jacob Laskin's No. 2 Pardee, Section 3-22-11, Sarepta, pumped 40 bbls. initial from 2,656 feet, and Magnolia Petroleum Co. abandoned No. 1 J. P. Baker, Section 35-23-11, dry at 3,392 feet. Palmer Corp.'s No. 3 Miller, Section 28-21-10, Cotton Valley, tested salt water at 4,754 feet.

The latest attempt to find production in the red beds in southeastern Arkansas had the same success as all other red bed tests drilled in that territory in 1927-28 which was nil. Arkansas Fuel Oil Co. abandoned No. 1 Crossett, Section 1-19-7, Ashley County, as a dry hole at 3,570 feet. J. G. Marcum, trustee, however, is reported cleaning up the rig and hole on No. 1 McGarry, Section 10-19-4, in the same county, which he abandoned at 3,300 feet in December preparatory to going 4,000 feet or better. Two Ouachita County wildcats also were failures. Anderson & Wimmer's No. 1 Buck, formerly Flaucher and others' in Section 7-15-17, between Smackover and Mount Holly production, was abandoned as a junked hole at 2,727 feet and Copenhaver and others' No. 1 Warnick, Section 2-15-17, 5 miles north of Mount Holly was a dry hole at 2,190 feet, not having been drilled to Mount Holly producing horizon. L. H. Hamilton's No. 1 Arnold & Doyle in Section 23-15-16, a wildcat about a mile north of Smackover production, was a small pumper at 2,039 feet.

MISSISSIPPI FIELDS

(Continued from Page 61)

Steffey's report on Mississippi activities states that his information from operators is that there was nothing showing to substantiate the story. Last report on it was drill stem stuck, total depth 2,908 feet.

Jackson Oil & Gas Co. will use gas from the Mayes well to fuel drilling their second test. C. W. Green has rig up to drill No. 1 Harris in the SE SE, Section 35-6-1e.

Lion Oil Refining Co. of El Dorado, Ark., has been curing titles on its block around Jackson in which vicinity four operations are under way. Reference has been made to three of these, the fourth being R. A. Moore and others' (W. E. Willis) No. 1 Interior Lumber Co. a location 440 feet south and east of the NW corner Section 28-6-2e, on which they are rigging up. Pure Oil Co., Steffey says, is leasing around Barnette, Clark County, and in Jasper County a mile east of Barnette. Some time ago the Pure drilled a 2,200-foot dry hole at Barnette.

Late information on active Mississippi wells is:

Alcorn County—Alcorn Petroleum Co.'s No. 1 Matthews, Section 14-2-7, recementing 6-inch, 2,418 feet total depth 2,735 feet. A shot at 2,500-50 feet failed to produce results.

Chickasaw County—Hightower & Golsan's No. 1 Fleming, Section 20-13-3, driving 8¼-inch casing T. D. 1,325 feet.

Lauderdale County—Lauderdale Oil & Gas Co.'s No. 1 Lackey, Section 2-7-16, shut down, work over, claiming show of oil and gas at 2,809-14 feet, total depth 2,816 feet. Meridian Natural Gas Co.'s No. 1 Hauser, Section 33-8-18, is coring at 2,770 feet.

W. W. Jones of El Dorado is reported building a 30,000-acre block in Kemper County on which he has a derrick up 6 miles south of DeKalb, the county seat.

Amory Petroleum Co.'s No. 1 Hall, Section 8-13-17, bailed dry at 2,420 feet after a gas show at 2,408-12 feet with some mud and salt water showing. It is supposed this came from the bottom of the original hole, the showing coming after whipstocking. Total depth is 2,420 feet in slate and the hole fills up about 50 feet in water over night. Amory Development Co.'s No. 1 Bourland, Section 2-13-19, is temporarily abandoned at 2,912 feet until their well on the Hall land is finished one way or the other.

Gulf Refining Co., drilling No. 1 Rainey in Section 13-5-1e, Rankin County, southeast of Jackson, was reported drilling at 2,195 feet and arranging to set 6⅝-inch. Collett & Carter's No. 1 Blackmur, Section 14-11-4w, Yalobusha County, total depth 2,433 feet, is fishing for drill stem, and Amerada Petroleum Corp.'s No. 1 Campbell, Section 24-12-2w, Yazoo County, was coring in the base of the Midway at 5,028 feet.

A. D. Morton and others' No. 1 O'Neal, Section 8-2s-13, was drilling at 125 feet in a gravel bed and is arranging to set 12½-inch pipe whenever a suitable seat formation is found. Hobson and others' No. 1 Wilson, Section 27-7-4w, Washington County, on the Hatchetigbee anticline, has resumed drilling at 881 feet.

SETTLE TIDELAND SUIT

Litigation between the Barnsdall-Rio Grande Oil companies and the tideland permit holders at Elwood Field, California, has been settled. Under the agreement the two companies granted the tideland holders the right to ingress and egress across their properties in Elwood Field, in return for which they will receive 10 per cent overriding retroactive oil royalty and all legal expenses incurred. This terminates all litigation in connection with the Barnsdall-Rio Grande operations in Elwood Field.

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PUBLICATIONS

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Chicago Demand Better Than Year Ago

Due to Much More Favorable Weather. Market Has Firm Tone, Several Marketers and Smaller Refiners Advancing Price

By J. B. Waldo

CHICAGO, Mar. 17.—There was more activity in the market today than a week ago, due for the most part if not entirely to the continued good consumption which is forcing a larger movement of gasoline from the refineries to the country. The most active demand came from contract customers and from the owned stations of the larger companies. Speaking of the latter, the management of one large company stated it was a fact that its shipments to its own stations were equal to those made in midsummer. He stated that possibly some of the shipments are for stock, but that the actual sales were much larger than a year ago.

There was not so active a demand from the jobbers but they have for the most part provided some supplies in advance. They all state that they are having a good gallonage, much better than a year ago, due to the much more favorable weather this season. Some have stated that their sales were double last season but the majority claims only a fair increase in the volume of their business. The market had a firm tone, several of the marketers and smaller refiners advancing their price to 6⅛ cents for U. S. Motor. The major refiners are still naming a price of 6½ cents as their spot quotation, but some are restricting this quotation to regular customers. The bottom price as quoted from Group 3 for Oklahoma material was 6 cents with some higher quotations. Very little gasoline is being offered here from North Texas, but some gasoline has been offered out of the Shreveport district at below the price for Oklahoma gasoline. Sales were reported by local sellers at 6⅛ cents, but the jobbing trade today was not quite ready to pay that price.

Kerosene was also in some better demand, although the market was not brisk. Prices of 4⅛ cents were still named but the tendency was to ask the quarter cent. There was considerable complaint regarding slow deliveries and some of the smaller plants both here and in the field reported they were sold up for week.

Industrial fuel oils were a little more active, some dealers reporting that they were in receipt of an unusual number of inquiries from industrial concerns who either wanted fuel oil at once or expected to be in the market in a short time. Prices were generally unchanged and the margins at the prices quoted would be narrow. Furnace oils were very quiet. Some refiners have advanced several numbers of neutral oils one-half cent.

Requisitions against previous purchases of bright stocks and other refinery material were large this morning and a good demand was noted for compounded motor oils.

Gasoline Market Firmer

The gasoline market showed more firmness last week. At the beginning the local trade was rather disappointed, that the fine week end did not result in more spot business, but as it advanced there was better buying from all sources. Jobbers were ordering steadily against contracts and there are only a limited number of such accounts that are not taking their regular quotas, and giving shipping instructions for the full quantities for the month with little urging by the sales offices here. Practically every section shows a larger consumption of gasoline, as indicated by the orders from the station managers received by the home offices. The Northwest as a whole is more backward than the more southerly parts of the territory. The Northwest has had late heavy snows and blizzards which did not visit this part of the country.

The spot prices registered a slight advance during last week. Judging from all the information available, this advance is based more on the proposed reduction in refinery runs than on any decrease in the supplies of U. S. Motor gasoline at present available to distributors. According to reports received the stocks of gasoline increased steadily up to March 1 and there has been no reduction in runs of sufficient volume to cause any apprehension on the part of buyers that their supplies of gasoline might be materially diminished.

Waiting to See Developments

The buyers of gasoline in tank car lots, that is the station owners and operators, have not been generally hurried into placing orders for their future needs beyond the present month. They are waiting to be shown actual decreases in runs and reductions in gasoline stocks. Refiners who have stated publicly that they should follow the suggestion of the Government's Oil Conservation Board, have been integrated companies. All of them distribute most of their production through their own stations. This reduction in runs on the part of these companies who are not primarily sellers of their gasoline in tank car lots to distributors, will do a lot of good but it will not decrease the supplies of gasoline available to the independent jobber unless these integrated companies so restrict their runs, that they are buyers in the refinery market and by so doing decrease the stocks of gasoline which would otherwise be offered to the smaller distributors and thereby strengthen the refinery market.

What the jobbing trade would like to know is, if the refiners with little or no distribution of their own are going to follow the suggestion of the Conservation Board and restrict their runs by at least the suggested one-seventh? If they fail to do this, the full purpose of the movement will not be accomplished.

One thing that is unsettling the minds of the jobbing trade in this territory is the numerous purchases of jobbing concerns by the larger integrated companies and rumors of the intrusion into this territory on a large scale by eastern companies who have had more than a limited part in the business of the Standard Oil Co. of Indiana territory. No confirmation is obtainable of these rumors.

Seek Share of Business

There seems to be no end to the number of large gasoline refining organizations which are seeking to get some portion of the distribution in the states covered by the Standard Oil Co. of Indiana. Originally of no marked value to the gasoline refiner, the increase in wealth and population followed by the great increase in the number of automobiles seems to be making this the most fiercely contested territory in the entire country. Increased efforts are being made by many of the larger companies already operating in this territory to gain a larger share of the consumption. Stations are being built with apparently reckless disregard for the needs of the localities. Better material at no advance in prices is one of the baits used to attract more business. Large bulk plants are being installed, refineries built, old refineries, enlarged and the intention of building a pipe line through this territory for the cheap transportation of gasoline has been made known by the Barnsdall company. The thought is that there cannot be business enough for all and that some must drop out of the race.

The major companies are as much worried over the situation in this territory as are the little fellows. Some of the latter feel that the majors have the more reason to be worried. The story is told of an established jobber in a good northwestern city who was confronted by the fact that one of the large integrated companies planned to enter his city. He made up his mind to work hard early and late, saying that he was sure that no outside company could find a manager for its stations in his city who would work as hard as he would to get business. He is still there and his business has grown with increased competition, because he speeded up his own business.

Taking Care of Business

However much the distributor may bother about the competition and consider the possibility of selling out at a high figure, he is not neglecting his going business and is taking care of it possibly as never before, the wise ones combining enterprise with caution. The buying reflects this attitude. With the coming of the spring season, it is customary to provide more liberally for the daily sales of gasoline and motor oils. The jobber must buy more because he soon will begin to move substantially more of these products. Along in the early spring the refinery shipments commonly exceed the actual consumption and the result is an accumulation of jobbers stocks, many of them not of great volume. The total quantity of gasoline which will be added to the stocks in distributors' tanks to be maintained at the same or nearly the same level for months is very great. While this accumulation is going on, the refinery business is brisk. Some of the present movement is the result of this regular plan of accumulation of supplies for a large consumption to come.

Locally the week ends have been specially favored and the same complaints of road congestion are made as were current last summer. The distributor is moving his stocks more rapidly than a year ago and he is getting at least a living margin. He would be quite happy except for the increasing competition.

The demand last week was chiefly for the U. S. Motor and the 60-62 gravity, the latter with both a 437 and a 400 endpoint. Some of the refiners sold these three products at the same price, or at least offered them for sale at 6½ cents. The market range early in the week was from 5¾ to 6½ cents, the latter being the nominal price quoted by the major refiners to inquirers for spot shipments but not getting much business. The market gradually strengthened at least as regards the prices asked by refiners until jobbers were being asked 5⅞ to 6 cents out of North Texas on a Group 3 basis with Oklahoma gasoline quoted at 6 to 6⅛ cents except in a few spots and for small quantities. A continuance of the demand will it is believed, result in the week closing with little gasoline to be bought out of Oklahoma or North Texas at less than 6 cents as the latter refiners have sold more freely than those in Oklahoma and claim to have small stocks.

Price Designed to Get Business

Gasoline is still being offered from other points on a Group 3 basis at prices designed to get the business. The home offices of most refiners seemed to be more optimistic than their local representatives, who were losing business in trying to get the prices which they were told to ask by their superiors at the plant. Usually the quotations for the 60-62 gravities were advanced with the U. S. Motor grade, but the 64-66 gravity in most cases was unchanged, not having shown the same decline as the other gravities.

Practically every refiner has some make of antiknock gasoline which he is pushing to his trade and to the public. The Standard Oil Co. of Indiana is currently reported to be at the beginning of a large advertising campaign to increase the already great popularity of its New Ethyl Gasoline and motor oils. The result of its efforts last season along this line must have been satisfactory.

Some unusual gasolines are offered which depend for their high benzol equivalent on the crude from which they are run rather than on the method of refining employed. Some of these crudes are closely controlled by refiners and their rivals are unable to meet their specifications.

One small refiner operating on a Texas crude puts out a product the specifications of which suggest a 50-52 naphtha except that the benzol equivalent is so very high that it evidently is a very fine blending naphtha to be used as a gasoline base. The entire output of the refinery has been taken right along by one of the large integrated companies, the supply being limited by the crude volume. Others are getting into the same kind of product from similar crudes in different Texas fields.

Much Supplied in Middle West

Material quantities of these naphthas are being supplied to distributors of the Middle West who blend them with natural gasoline to obtain a satisfactory gasoline at less than the prevailing market. On the other hand most of the larger refiners have improved their regular gasoline sold through their stations until it is better than the regular U. S. Motor specifications and this practice is becoming so general that it suggests that at some not distant date the motorist getting his supply of gasoline at the station of any good company will receive a product more powerful and prompt in action under all conditions than the present U. S. Motor fuel.

Kerosene, according to reports received from the country district, is beginning to move, but the tank car business has been light although a little better than last week. The jobbers as a rule have more or less kerosene in their storage and do not at present require further supplies. When the tractor season really opens as it should soon, the demand may be much more active than at present. Prices have not been changed in the market although some of the refiners are asking a little more money for future shipments.

The demand for domestic fuel oil is unsettled, being light as a whole, owing to the reduced consumption. Orders for occasional cars are received, but that is about all and as most distributors have contracts with refiners on which they have still some cars coming, the present demand is against contracts and the new orders are light. The demand for distillates is less active than that for zero gas oils. The distillate consumption seems to have fallen much below the preparations which were made to supply it.

Distillate as Tractor Fuel

In the country districts distillate is being used, or at least offered as tractor fuel but only those with a low flash and clean of non-volatile matter will meet the requirements. The going market here is just about 3 to 3⅛ cents, according to quality and the views of the seller. Some very good distillate is being offered to the jobbers at this price.

Zero gas oils are also easy and one source of supply is offering its available stocks of a good 32-36 zero blended fuel oil at 2½ cents to resellers, while the

(Continued on Page 136)

Curtailment Improves Eastern Market

Program Adopted by Principal Refining Companies Results in Greater Stability, With Definite Indications of Upward Movement

By A. E. Mockler
New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, Mar. 17.—The effects of the one-seventh curtailment program of principal refining companies already have made themselves apparent in the East Coast market through a pronounced improvement in sentiment in gasoline marketing. The refinery market is showing a greater degree of stability than for months past, and there are definite indications of an upward movement by the time the early spring demand makes its appearance. The cut in posted prices, which appeared inevitable ten days ago, has been avoided, and more companies are selling their output closer to the posted basis. While several of the smaller companies are still under the general market, refiners are showing much less willingness to shade quotations, and a general upturn appears probable.

While there has been nothing in the shape of a general upward move in prices, markets for other refined products have likewise displayed improvement in sentiment. Bunker oil, Diesel oil, and gas oil have all felt the influence of the curtailment program, and while this has been more in the form of anticipated cuts in output rather than any definite improvement in the spot situation, the market tone is undeniably healthier. Lub oils and paraffin wax have been slower to reflect the effects of the co-operative curtailment movement of the refining industry, but improvement in these products also is expected by operators.

Although eastern petroleum interests are by no means disposed to accept the one-seventh curtailment plan as a cure-all for the ills of the industry, it is generally felt that material improvement in morale has been engendered and that definite gains in the statistical position of the refined products market are in sight. General adherence to the curtailment plan has been expressed by leading factors in the industry here, and the outlook for spring and summer sales has undergone a radical change for the better since the adoption of the Oil Board's suggestion.

Tank Car Gasoline

While the stage apparently was set for a general reduction in the tank car gasoline market here a week ago, such a decline is now rather to be questioned. The general acceptance on the part of the refiners of the country of the one-seventh reduction in refinery throughput, in compliance with the Federal Oil Conservation Board's suggestion for a Sunday shutdown, has brought about a marked reaction in sentiment in this territory, and there is a strong feeling now that the market may be held at present levels.

There are 15 or more major interests selling in the East Coast wholesale market at the moment, with at least 12 of these sellers active in the New York and New England markets. This naturally makes for keen competition, and the sharpness of this competition may yet force a general lowering of the tank car basis before the full influence of the refinery curtailment movement makes itself felt. Such a cut, however, appears remote. Major factors in the local market are quoting U. S. Motor in tank car lots at 8¼ cents per gallon, refinery, but there are sellers whose posted prices are a quarter to a half cent per gallon under this basis. A week or so ago it was generally felt that the large sellers would come down to the 8¼ cents level, and might possibly drop their posted price to 8 cents, but such a move at this time now appears less likely. On the contrary, sellers at the lower figures have advanced their quotations.

Competition is still keen in the Philadelphia and Baltimore areas, with the general going price 8¼ cents per gallon in tank car lots. Gasoline is moving into South Atlantic territory in larger volume, both from California and South America, and this section of East Coast territory in all probability will witness the same race for gallonage that has caused such market disturbance in New York and New England territory during the past year. South American gasoline, in particular, is expected to make a strong bid for the South Atlantic markets, with California also well in the forefront of competition for this business. The refinery curtailment movement, however, is expected greatly to ameliorate the severity of this competition, and will probably avert the market chaos which has accompanied the clashing of similar marketing forces in other sections of the East during the last year or so.

Tank Wagon Gasoline

Eastern tank wagon markets are still far from stabilized, and "local competition" is much of a factor in the situation at many points. The market is showing a more encouraging outlook, however, as the refinery curtailment move gains impetus, and it is expected that improvement in the position of the tank car market will be paralleled by a firming-up in tank wagon markets.

Small independents are still underselling the leading markets by about 1 cent per gallon in many sections of the East, but marketers in most instances are disregarding this competition, and are limiting themselves to meeting prices quoted by their larger competitors.

Weather conditions have been more favorable in the East, and there has been a perceptible improvement in gasoline buying during the week. This has been reflected in the sales of both U. S. Motor and premium gasolines in the tank wagon market. Continuance of consumption at present levels, it is believed, would go far toward effecting an immediate stabilization of tank wagon markets in this area.

Richfield at present is conducting an aggressive campaign for new dealer accounts in New York City, and Shell is also active in the retail field in the metropolitan area. Many of the other large companies, already strongly entrenched here, have adopted a policy of acquiring by direct purchase retail stations, rather than continue to market their output through independent filling station operators in competition with other large marketing groups.

Kerosene

Tank car movement has shown a little pick-up during the last week, and the market is exhibiting a better feeling. Principal refiners are quoting water white at 7¾ cents per gallon at the refineries, although one or two of the smaller sellers are booking business down to 7¼ cents in the tank car market. Jobbers have come in for supplies in moderately large volume during the week, and tank car movement has shown some improvement. Prices are still subject to shading in some parts of eastern territory where competition from Pennsylvania refineries has made itself felt during recent months, and kerosene is taking on some of the competitive aspects shown by motor fuel.

There have been no general revisions in the kerosene tank wagon market during the week. Refiners report that their tank wagon sales through filling stations have shown a marked increase this year, and further sales development work along this line is contemplated for next year. Spring movement of kerosene, it is expected, will be fairly large, and the outlook favors a better market, due to cuts in refinery runs.

Diesel Oil

Refiners are holding the market unchanged at $2 per barrel, bulk, at refinery terminals, and a good volume of business is reported. In common with bunker oil, the outlook for Diesel has shown marked improvement as a result of the cuts in refinery runs.

Contracts for 1930 Diesel oil deliveries in many instances carried a clause embodying a flexible price, with a $2 minimum and a $2.10 maximum. Recent developments in the market have indicated the possibility of the market going to $2.10, in the event that demand continues to gain at the present rate. Such a development, naturally, would be contingent upon a continuance of the curtailment program in refinery runs, and might conceivably be frustrated by any appreciable increase in the movement of California Diesel oil to eastern markets.

Large marketing companies in the New York area, it is understood, have booked a substantial volume of business, in the aggregate, covering Diesel oil deliveries to large private yachts during the coming yachting season in this area.

Fuel Oil

Market sentiment has shown pronounced improvement with the curtailment of refinery runs, and there is a much better feeling in all quarters of the market. There is no definite talk as yet regarding the possibility of any price advance before the close of the year, but maintenance of the present level of $1.05, bulk, at refinery terminals is assured, it is felt, and the possibility of a better return on heavy oil through a curtailment of output is more favorable now than at any time during the past year or so, operators believe.

Contract withdrawals of bunker oil on the part of the large steamship companies continue heavy, and industrial consumption is coming up to expectations. The statistical position of the market is better, and refiners believe that definite headway will be made in cutting down the heavy surplus stocks which have been such a bearish influence on the market.

Advices from the Gulf indicate that fuel oil prices are definitely higher, with further increases in prospect.

Shortage of tankers, it is felt, precludes the possibility of any marked increase in shipments of California fuel oil to East Coast markets.

Gas Oil

While the market is showing a better feeling, in sympathy with the more bullish outlook in all refined products markets, prices have not yet been affected by this sentiment. The posted price remains nominally unchanged at 5¼ cents per gallon for 28 plus recycled oil, but the "going" market is a quarter cent under this figure in most instances, with gas oil at 4¾ cents, refinery terminals, by no means a rarity.

Gas oil consumption is fairly well maintained for this season of the year, refiners report, and with the curtailment of all refinery runs the market is expected to go into the spring season in fairly strong position, from a statistical standpoint. Large gas companies continue in the market for stocks of gas oil in fairly substantial volume, with the bulk of this oil moving against term contracts.

Lubs

A mixed trend developed in cylinder stocks this week, with prices firming up on some grades, but with bright stocks in easier position. Market sentiment is improved, notwithstanding the lower prices on some grades, with the optimism based on the cut in refinery operations, and the expected improvement in the statistical position of the market.

Spot 600 steam refined is up 1 cent per gallon at 31 cents, with 635 held at 33 cents, also 1 cent higher, and 650 showing a corresponding increase to 37 cents per gallon. On 600 Pennsylvania flash, stocks are reported available at 39 cents, down 1 cent, with 630 flash showing a corresponding drop to 42 cents per gallon. The market for 600 Warren E is quoted off 1 cent at 38½ cents per gallon, with 600 Oil City also down 1 cent at 37½ cents per gallon. Bright stocks have also eased off, with light a half cent lower at 48 cents per gallon and dark showing a corresponding reduction to 47 cents.

Local sellers report a better export inquiry, and domestic sales are also expected to show seasonal improvement within the next fortnight. Notwithstanding the more optimistic sentiment, however, there is very little speculative interest in cylinder stocks.

Red and pale oils have remained unchanged in price this week, with a continued good movement reported. There is a good demand from the domestic industrial trade, and tank car movement is well sustained. Exports are also holding up well here, with a good movement reported at the Gulf as well.

Paraffin Wax

The market remains in easy position, under the influence of heavy stocks at the refineries, and prices are lower. While the trade is looking for some betterment in the market position, due to refinery curtailment, it is not expected that this improvement will make itself apparent at an early date, owing to the excessive holdings of many refiners.

Crude scale has sold off under pressure, with 122-124 a.m.p. available in a large way at 2.75 cents per pound, off 15 points from the previous quotation.

Fully refined grades have reflected this weakness, with prices lower on all melting points, as follows: 120-122 a.m.p., 3⅝ cents, off one-quarter cent per pound; 125-127 a.m.p., 4 cents, off one-eighth; 130-132 a.m.p., 4½ cents, off an eighth; 133-135 a.m.p., 5½ cents, off an eighth; and 135-137 a.m.p., 5⅝ cents, also down an eighth.

Export buyers continue in the market in but limited volume, and the same holds true of domestic consumers, although more inquiries are coming in from the latter, and early improvement in demand is anticipated.

Export Markets

Quiet markets ruled at the Gulf this week. Foreign buyers are busy digesting the most recent events in the refined products situation in the United States, and it is expected that large-scale buying will develop shortly. Some talk is heard regarding an upward revision in both gasoline and kerosene at the Gulf within the next month.

Any further advances in domestic crude oil prices, it is felt here, would be followed by an immediate increase in export buying interest on all products.

Fuel oil is firmer at the Gulf, but additional buying has been lacking. Some inquiry has developed for material for shipment over the second half of the year, but buyers have been unable to place this business at satisfactory levels, due to the firmer ideas of sellers at the Gulf.

Quiet in both Venezuelan and Mexican crude prevailed during the week. Buyers in most instances have their requirements for the first half of the year already covered, and with producers show-

ing firm price views, no incentive for open market trading exists.

The California export market is reported to be steadier, following the advance in crude oil prices in that area.

Petroleum Exports

The following table shows principal exports of refined petroleum products from New York for the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	Mar. 8	Mar. 1	Feb. 22
Gasoline	255,000	280,000	77,000
Naphtha	.....	1,665,000	3,650,000
Kerosene	12,000	127,000	730,000
Fuel oil	6,000	35,000	300,000
Lubricating oil	960,000	1,272,000	680,000
Petroleum, refined	1,590,000	3,015,000	415,000
	Pounds		
Petrolatum	54,000	184,000	21,000
Paraffin wax	2,068,000	2,040,000	1,650,000
Refined	180,000	560,000	18,000
Scale	241,000	1,435,000	488,000
Lubricating grease	1,340,000	875,000	554,000

Eastern export operators are looking for a marked revival in demand for refined products. The refinery curtailment plan adopted by principal American refiners has aroused considerable interest in foreign oil distributing circles, it is stated, and considerable buying in anticipation of higher prices later on in the spring is indicated by reports now reaching the trade. Any appreciable increase in export demand, it is believed, will be immedateliy reflected in improvement in the price situation in domestic markets. Hand-to-mouth export buying has been a factor in making for depression in gasoline, kerosene, and other products in this territory.

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended March 8 totaled 1,816,000 bbls., a daily average of 259,428 bbls., compared with 2,085,000 bbls., a daily average of 297,857 bbls. for the previous week. Details follow:

	Bbls. of 42 Gals.
At Atlantic Coast Ports—	
Baltimore	159,000
Boston	60,000
New York	993,000
Philadelphia	180,000
Others	313,000
Total	1,705,000
Daily average	243,571
At Gulf Coast Ports—	
Galveston district	70,000
New Orleans and Baton Rouge	15,000
Port Arthur and Sabine district	26,000
Total	111,000
Daily average	15,857
At all United States Ports—	
Total	1,816,000
Daily average	259,428

California Oil Receipts

Receipts of California crude and refined petroleum at Atlantic and Gulf Coast ports for the week ended March 8 totaled 294,000 bbls., a daily average of 42,000 bbls., against 175,000 bbls., a daily average of 25,000 bbls. for the previous week. Details follow:

	Bbls. of 42 Gals.
At Atlantic Coast Ports—	
Baltimore	150,000
New York	144,000
Total	294,000
Daily average	42,000
At Gulf Coast Ports—	
All ports	.....
At Atlantic and Gulf Coast Ports—	
Total	294,000
Daily average	42,000

Distribution of total California oil receipts is as follows:

Gasoline	150,000
Kerosene	50,000
Lubricants	94,000

Shipments of California refined products for East Coast ports during the week with owner of tanker moving the oil were as follows:

To New York—73,000 bbls. of distillate on the Acme (Standard Transportation Co.—S.O.N.Y.); 119,000 bbls. of gasoline on the W. S. Rheem (Standard Oil Co. of California).

To Baltimore—73,500 bbls. of gasoline on the Aryan (The Texas Company).

The advance in California crude oil, following the upholding of the validity of the California gas law, has aroused widespread interest among eastern handlers of California gasoline. The increase is expected to be reflected in an improvement in the California gasoline price situation at an early date.

KANSAS FIELDS

(Continued from Page 52)

tends through the Voshell Pool in McPherson County.

Slick, Pryor & Lockhart announce the purchase of a half interest from the Allison-Fitzwilliam Petroleum Corp. in the 8-acre lease in the Schurr Pool in Rice County. The lease is a quarter of a mile east of the production in the area and has a test drilling about 500 feet deep. The location of the acreage is in the SE of NE of Section 21-20-10w. The consideration was $100,000 half cash and the balance in oil.

Good Well in Rice County

The Vickers Petroleum Co.'s No. 1 Binger, NW cor. SE Section 21-20-10w, in the Schurr Pool, in the Raymond district, of Rice County, swabbed 1,702 bbls. the first 24 hours. It is the largest well completed in the pool to date. Some express the opinion the well could do better than 2,000 bbls. on air or gas lift.

The Aladdin Petroleum Corp. has purchased a one-half interest in two tracts a half mile south of the production in the Schurr Pool from Moore & Hemple for a reported consideration of $100,000, half cash and half oil. The acreage included in the purchase is the south 50 acres in the NW and W half of NE of Section 28-21-10w, Rice County.

Butler County

Callahan & Lassen made location for No. 1 Mackerle, SE cor. SW, Section 10-26-6. Sanford and others' No. 1 Brooks, NE cor. NW SW, Section 12-28-5, has been abandoned at 2,758 feet. Shell Petroleum Corp.'s No. 1 Harper, SW cor. NE, Section 35-26-3, is dry and abandoned at 3,051 feet.

Chautauqua County

Croft and others' No. 1 Anderson, NW cor. SE, Section 16-35-11, is spudding.

Coffey County

Selby Oil & Gas Co. has the rig up for No. 1 Scott "B," CEL NE NE, Section 13-23-14. Hinsley and others' No. 1 Van Ocker, SW cor. SE NE, Section 12-23-14, made 50 bbls. in sand 1,594-1,606 feet.

Cowley County

Luett & Sheets made location for No. 1 Wilson, NW cor., Section 7-30-7. Roth & Faurot staked location for No. 2 Holt, NW cor. NE SE, Section 12-32-4. Blankinship Petroleum Co.'s No. 1 Marshall, SE sor. NW, Section 36-30-6, has been abandoned at 2,968 feet. Edenfield & Fair's No. 1 Boston, C W half NE, Section 17-34-4, has been completed for 2,000,000 feet of gas in sand 365-70 feet, after plugging back from 639 feet.

Elk County

Empire Oil & Refining Co. and Arkansas Fuel Oil Co.'s No. 1 Record, NW cor. NE SE, Section 32-30-10, is a dry hole at 2,450 feet.

Greenwood County

Skelly Oil Co. and Tidal Oil Co.'s No. 20 Wick, SW cor. SE SW, Section 27-22-11, is a location. Empire Oil & Refining Co.'s No. 1 Wasson, NW cor. NE SE, Section 22-22-12, is a location. O'Neil and others' rig is up for No. 1 Ford, NE cor. NW, Section 28-25-13. Morromery and others' No. 1 Denchfield, SE cor. NW, Section 12-27-9, is spudding. O'Neil and others' No. 1 Brinn "A," NW cor. NE NW, Section 34-22-11, has been completed for 50 bbls. in sand 1,879-1,919 feet. Empire Oil & Refining Co.'s No. 3 Norton "C," SW cor. SE NE, Section 22-22-12, has been completed for 120 bbls. in sand 1,693-1,715 feet. Simmons & Rhodes' No. 5 Patterson. NE cor. SW SW, Section 22-23-11, made a 50-bbl. well in sand 1,958-95 feet. McCulloch and others' No. 1 Gaffney, SW cor. NW NW, Section 12-24-10, is a dry hole at 2,104 feet.

Harvey County

Jolly & Ogg's No. 1 Hupp, SE cor. NE, Section 22-23-1w, has been deepened from 3,220 feet to 3,505 feet and abandoned. Superior Oil Corp.'s No. 1 Regier, SE cor. NW, Section 11-22-3w, is dry and abandoned at 3,752 feet.

McPherson County

Shell Petroleum Corp.'s No. 6 Stuckey, SE cor., Section 9-21-3w, Voshell Pool, is rigging up. The Texas Company's No. 2 A. Stuckey, SW cor., Section 10-21-3w, is a rig under construction. Shell Petroleum Corp.'s No. 2 Koehn, NE cor., Section 16-21-3w, is rigging up. Empire Oil & Refining Co.'s No. 1 Voshell, NE cor. SE NE, Section 9-21-3w, has been deepened from 3,309 feet to 3,315 feet and swabbed 1,007 bbls. in 15 hours. Sinclair Oil & Gas Co.'s No. 1 Voshell, SW cor. NW NW, Section 10-21-3w, has been completed for 1,046 bbls. in Wilcox sand 3,352-63 feet.

Russell County

Mid-West Exploration Co.'s No. 33 Speer, SE cor. SW NW, Section 32-13-15w, has been completed for 115 bbls. in sand 3,316-17½ feet.

Sedgwick County

T. C. Johnson made location for No. 1 Petrie, SW cor. SE, Section 35-26-1w.

Trego County

The Prairie Oil & Gas Co.'s No. 1 Kutina, NE cor. SW NE, Section 29-15-21w, is dry and abandoned at 4,383 feet.

Sumner County

Sinclair Oil & Gas Co. has the rig material on the ground for No. 1 Kamas, SW cor., Section 28-31-1w. Sunray Oil Co. made location for No. 1 Neal, SE cor., Section 29-31-1w. Carter Oil Co.'s rig is going up for No. 1 Frankum, NE cor., Section 32-31-1w. Lario Oil & Gas Co. and others' No. 1 Osborne, NE cor. SE, Section 20-30-1w, is dry and abandoned at 4,011 feet. Slick, Pryor & Lockhart's No. 1 Peasel, NW cor., Section 33-31-1w, has been deepened from 3,659 feet to 3,668 feet and making 120 bbls.

CHICAGO DEMAND IS BETTER THAN YEAR AGO

(Continued from Page 134)

market is generally held at 2¾ cents for dark zero and 3 cents for straw, the latter being still a scarce article. The purchasing agents of the gas companies state that their present needs are light and that they are not buying. Many are receiving all the gas oil that they need for their plants on contracts and have no need to buy. The industrial demand for artificial gas is light for industrial uses. The domestic grades of fuel oil are being quoted at much lower prices even the 28-30 gravity with a good flash and free from all disagreeable odor being offered at $1 a barrel.

The demand for the heavy industrial fuel oils is still light, the active movement being on contracts and the spot buying light by comparison. A check made of the industrial situation showed that the car shops were busy on orders for railroad equipment. There has been little ordering of freight and passenger cars for about four years and many roads really need the extra, or new cars.

Some at End of Their Orders

Other industries are not well occupied and some plants are at the end of their orders for spring delivery and may be obliged to close down entirely if their sales departments do not bring in some additional business for immediate manufacturing. Some of the plants got a certain amount of business and were quite active during the first few weeks of the year but the additional business brought in has been light and they are retrenching rather than expanding.

Some buyers have reduced their orders for March, as they have not used as much oil as they expected to do and have some stocks which with slight additions will last them until April. Part of this reduced consumption has been because of lack of oil for heating. The real heating season is over with March and the large buying of fuel oils for this purpose is just about done with. Prices have slipped a little. Refiners with supplies on hand have been in the market interviewing psosible purchasers, including the marketers of fuel oil, and they do not find the outlook so good that they have called the market at all strong even from their viewpoint. Some of the refiners have quietly shaded their prices another notch but their sales have not been increased to any great extent. One well known refiner who has had no fuel oil to sell except on contract is again quoting a price of 65 cents for 18-22 zero fuel oil. This is a reduction of more than 20 cents per barrel but on the strength of that price open quotations have been made to users of 67½ cents. An even greater reduction was made in its higher gravities.

Lubrication Oils Active

Lubricating oils are more active as the compounders are taking out their refinery stocks. One of the most interesting happenings in this line last week was the announcement made by the Standard Oil Co. of Indiana of its new motor oils. Continuing the start made with its "New Ethyl" Gasoline the company has named these the "New Iso-Vis" and the "New Polarine." They are dewaxed oils with a sub-zero pour test and the other specifications of a modern motor oil including something of the predilution quality which was made the feature of the Iso-Vis on its introduction. The prices are to be the same.

Another oil for use in heavy motor oils to reduce the percentage of bright stocks required, has been shown in this market. It is made at an eastern refinery of one of the large integrated companies and judging from the sample, was about a 2½ color. It was stated to have a viscosity of 100 at 100 and a good color somewhat grayish in cast. The Sun Co., which has made such an oil for more than a year and last year sold large quantities of it, is sold up for the present.

There is talk that the market will not hold, but leading refiners of western bright stocks assert that the demand will be larger and that they know of no important additional sources of supply. The demand for motor oils from the jobbing trade is better while the industrial demand is "just fiddling along."

There has been no general change in the tank wagon structure over the territory and none is expected for several months.

BOOKS ABOUT OIL

"The Problem of Oil" is the title of a book written by Christopher T. Brunner and published by Ernest Benn, Ltd., London, England, giving what is stated to be an authoritative account of the British oil industry, its organization and its various products from the economic standpoint. It is an interesting publication for those engaged in the oil industry.

The 1930 issue of the Handbuch der International Petroleum Industrie, published by Finanz-Verlag G. m. b. H., Berlin C2, has just been received. It is a valuable reference book, giving data about oil companies throughout the world.

PETROLEUM ACCOUNTANTS

The Petroleum Accountants Society of Oklahoma will hold its next monthly meeting March 27 at Independence, Kans. It is the second meeting the society has held out of the State and it is the intention to scatter the meetings in different parts of the territory where the members are located. The society held its first banquet at the Tulsa Country Club, March 13, and had a large attendance.

NEW OIL TAX BILL IN TEXAS

AUSTIN, Tex., Mar. 15.—An occupation tax of 1 cent per barrel on all oil transported by pipe lines in Texas was proposed in a bill introduced in the house by Representative Mike Hogg of Houston, Phil Sanders of Nacogdoches and T. N. Mauritz of Ganado.

"This will produce an annual revenue of $3,000,000," Hogg said.

It would exempt oil transported in gathering lines throughout oil fields. There is no occupation tax on oil transported through pipe lines at present. Hogg said.

JAMES A. MOFFETT SAILS

James A. Moffett, vice president Standard Oil Co. of New Jersey, sailed aboard the Cunard liner Berengaria last week for a six weeks routine business trip abroad.

Natural Gasoline Manufacture

Instrument Control Important Factor in Efficient Operation

By W. C. Begeebing
C. J. Tagliabue Manufacturing Co.*

In any "recovery" operation or process, rigid economy is the first requirement for financial success. This explains why the natural gasoline industry early recognized the value of indicating, recording and controlling instruments. The plant operators realized that their process was essentially one of temperature and pressures; that these temperatures and pressures must be maintained at certain stages within a narrow range; that this desired uniformity could not be obtained by manual manipulation which was moreover expensive from the labor standpoint. So they adopted indicating and recording thermometers and pressure gauges to tell them what their conditions were and employed automatic controllers to secure these conditions without labor or chance of error. Level was another factor which was placed under accurate and dependable automatic regulation.

The early appreciation of instruments bespeaks the initiative of this industry; its ever increasing use of these valuable aids to production demonstrates its progressiveness.

In the following concise yet fairly complete "bird's-eye-view," the use of temperature, pressure and level devices is outlined.

Gathering Lines

On the suction lines leading from each lease into the vacuum pump station a recording vacuum gauge is necessary to regulate the amount of vacuum carried on the wells. It is usual to carry this vacuum at a constant point agreed upon with the lease owner and a permanent record eliminates disputes. A recording thermometer should be installed so that the proper correction can be applied in determining the cost of the gas. The discharge line from each vacuum station should also be equipped with a recording pressure gauge for checking line losses and also for maintaining vacuum station capacity.

A recording pressure gauge should be installed on all residue gas lines, as this record is often involved in questions of payment for gas.

Gas Compressors

In plants where the gas is compressed in two stages, it is desirable to have the low-stage and high-stage compressor carrying the same load. Assuming that the temperature of the suction inlet temperatures of both stages are equal, then the temperature of the gas discharged from both compressors will be the same. Recording thermometers should be placed in both intake and discharge of both compressors. The suction inlet to compressors should be fitted with recording pressure or vacuum gauges for compressor capacity rating purposes. The discharge pressures should also be recorded.

Coolers—A continuous record of the cooling water temperature in the box condenser or in the cooling tower pool should be provided by a recording thermometer. A record of the gas temperature leaving the cooling coils should also be kept.

Accumulators — Any gasoline which condenses is collected in the accumulated tank which should be maintained at a uniform level by means of a liquid-level controller which automatically regulates the "blowing" of the gasoline to storage or into the make tank where it is blended with the naphtha. Automatic control is necessary because if the level becomes too

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*Annual meeting, Western Petroleum Refiners Association, Shreveport, La.

COMPANIES EQUIP AIRPLANES TO MAKE NATURAL GASOLINE TESTS

Dr. G. G. Brown, director of research for the Natural Gasoline Association of America, made a final inspection of the instruments and procedure outlined for obtaining data in connection with the association's work in aviation fuels while

Travel Air Wasp-powered monoplane showing special instruments installed by the Phillips Petroleum Co. for the purpose of making actual flight tests on gasoline.

in Bartlesville, Okla., March 14. Four planes have been equipped with the necessary instruments, including a Hornet-powered Boeing monoplane owned by the Empire Oil & Refining Co., a Wasp-powered Travel Air monoplane owned by the Phillips Petroleum Co., a Spartan biplane powered with a Whirlwind motor entered by the Skelly Oil Co., and the Shell Petroleum Corp.'s Wasp-powered Lockheed.

Each of these are equipped in a manner similar to the one shown in the illustration. This plane is also equipped with two fuel systems so it will be possible to test a very wide range of fuels without danger.

It is the purpose of the association to determine from actual experience the requisites of a satisfactory aviation fuel under all conditions of air travel and to include in these trials the use of all kinds of gasoline from the heaviest of motor naphthas made from crude to the most volatile of fuels made from natural gasoline. All possible kinds of blends will also be tried and the experimentation will no doubt extend over many months' time. It is quite likely that other companies will enter planes in this work and several have practically signified this as their intention.

All data will be tabulated on prepared forms and this will be forwarded to Doctor Brown at the University of Michigan. The ships will continue to follow their regular routine of work so the data will represent as near actual, practical results as is possible and no doubt will definitely lead to perfecting an aviation fuel or a series of fuels which will answer the

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Construction and Operation

GAS TESTER ON RECONNAISSANCE*

In a going concern, the staff is on the constant look-out for likely natural gasoline situations. There is a peculiar sort of competition for new gas regardless of market conditions, unlike in the olden days. Where less than a decade ago a plant was not considered until a large number of wells were drilled, today it is not unusual to see a plant built shortly after a discovery well has been brought in. One does not now find a field with a hundred wells on settled production, where the wells may be measured as to volume and tested as to gasoline content to determine almost without a gamble the success or failure of the project.

Gasoline plants today are projected, almost without exception, in new fields. When a discovery well in a sand or lime country has been brought in, the department head obtains permission from the well owner to make a test of the gas, if such permission is in his judgment deemed necessary. If the well is owned by a company which is itself a gasoline manufacturer, and if that company owns most of the acreage around the well, the gas tester assigned to the survey will do little more than test the well for volume and gasoline content. This information is usually sufficient for the general office, which already has, or has access to, the necessary geological data to make a record of the situation for future study. Such study or review may be necessary if the company is giving consideration to the acquisition of, or has acquired, acreage or production in the new field quite independently of the considerations of natural gasoline possibilities.

If the acreage on which a "healthy producer" is brought in is owned by the company, or if it is in the hands of particular friends of the company, or if it belongs to smaller production interests which do not specialize in gasoline manufacture, the gas tester sent out to make a study of the new well or wells has a very important job. Decisions of great moment are made upon the basis of this tester's reconnaissance and report. He is the scout for the gasoline department.

Work of Tester

The tester of today goes out to the well, "gets the lay of the land" by contacting with the lease man, and if he is resourceful, possibly gets that man to help him line up his equipment and paraphernalia. He rigs up, starts a charcoal test, and, if he desires to save time, runs a physical test at the same time. As a matter of check, he probably makes several absorptions, and makes a check test with the test car. Over and above these, he obtains several gas samples for fundamental analysis in the general laboratory. This latter information is most essential for the engineering study of the situation, for upon it are based the type, character, and size of some or all of the absorption and distillation units.

Having obtained gas tests and samples, the operating conditions of the well, back pressure, gas volume, gravity and volume of oil produced, character of producing formation, presence of upper gas, etc., the tester scouts around for convenient plant locations.

The selection of tentative locations taxes the judgment and circumspection of the tester. While he is not responsible for the final selection of a plant site, he knows in a definite sort of way what constitutes the most ideal site. Several sites are selected so that due consideration may be given to the trend of development of the pool, for it is of major importance from a pipe line and compressor-station cost standpoint to have the plant located in a central position with respect to the several producing leases. The sites should be relatively level in order to reduce grading costs to a minimum. The engineering division will later make certain that the site selected will not be in the way of development or dangerously near locations. The ascertainment of the ownership of sites will often save time and expense later on.

The survey will also show the location of the tentative sites with reference to railway lines, as well as give such data as is available on the ground with reference to water formations, streams, possible dam sites, etc. If samples of water may be obtained, they will be forwarded to the general office for analysis, with complete descriptions of their source, to determine their utility for cooling purposes as well as whether or not they must be treated for use, and, if so, how.

If the tester takes advantage of his opportunity while awaiting a propitious time to make his tests and brouses around and locates suitable sand and rock and spots their location in his report, he will save time and expense of the engineers who will need this information in preparing their estimates and later for making purchases. A sample of sand is invaluable.

From this brief outline of the tester's duties during a reconnaissance, it will be seen that a versatile man is required for the job. It is desired to create this very impression for there is a major difference between a "gas tester" and a gas tester. A gas tester who can meet these requirements represents a reserve from which departmental management can draw to fill its most important positions.

*Fourth of a series of articles explaining the inner workings of a natural gasoline organization. The series was prepared by an operator actively engaged in all phases of construction and operation.

Brief Items for Petroleum Refiners

Independent Oil Men Re-elect President And Fill Vacancies

By J. B. Waldo

CHICAGO, Mar. 17.—Col. E. H. Hilpp, vice president and general manager of the Kentucky Consumers Oil Co., Inc., Louisville, Ky., was re-elected president of the Independent Oil Men of America at a meeting of the board today. Colonel Hilpp has headed the activities of the association for several years.

A. L. Lommel of Waterloo, Iowa, was elected vice president of the association. Paul Deer was re-elected treasurer. It is expected that C. Y. Hinchey, who has been devoting his entire time to association work, will be re-elected secretary.

Although the meetings held were primarily for the purpose of filling vacancies on the board of directors and the election of officers there was considerable discussion regarding the business outlook for independent jobbers over the remainder of the year.

The attendance at the meeting was limited to members only and many of them exercised their right to vote by mail instead of coming to the meeting. There were about 60 of the active membership present. The spirit of the meeting was optimistic as regards the future of the organizations and several plans are being developed for increasing its activities.

One of these is for an intensive plan of highway advertising to be used to link up the stations of the various members by signboards and displays of the red spread eagle, the emblem of the organization. A suggestion was made that the fall convention with exhibits be held at St. Louis, and the officers having the final decision were requested to give the claims of that city full consideration.

The election of the 10 directors was

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ADVANCE DIVISION MANAGERS

The Cities Service Oil Co. has made several changes in the personnel of the various division offices, brought about principally by the expansion of the company's marketing facilities. V. B. Day, formerly division manager of the Chicago office, has been assigned to special development work in the Chicago territory and G. S. Speaker, formerly division manager at Kansas City has been made division manager of the Chicago office. F. W. Loring, formerly division manager at Cedar Rapids, Iowa, takes Mr. Speaker's place in Kansas City.

H. B. Strang has been made manager at Cedar Rapids and J. R. Trolinger, formerly sales manager at St. Paul, has been made manager at Rockford, Ill., succeeding W. J. Osborne, who has decided to devote his time to real estate. C. S. Van Sickle has been named sales manager in St. Paul and A. E. Einer, sales manager at Cedar Rapids, Iowa.

RESTRAIN USE OF NAME

NEW YORK, Mar. 15.—Standard Oil Co. of Maine, organized on September 28, 1929, has been permanently enjoined by Judge John A. Peters of the United States District Court, in Portland, Me., from doing business in Maine unless it changes it name so that it will not be confused with the Standard Oil Co. of New York.

The injunction decree sustained a bill in equity brought by the New York company.

Judge Peters ruled that the defendant company has perpetrated a willful and continuing trespass upon the rights of the Standard Oil Co. of New York. The Maine company had not started business when action was taken.

URGE MID-CONTINENT OPERATORS TO APPOINT PLANT FIRE MARSHALS

SHREVEPORT, La., Mar. 14.—Operators of Mid-Continent refineries were urged to appoint fire marshals at their plants and also organize a fire marshals' association, at the Manufacturers Meeting of the Western Petroleum Refiners Association which closed here yesterday.

Houston Dunn, secretary of the National Petroleum Mutual Fire Insurance Co., who addressed the executives at the annual meeting of the Western Petroleum Refiners Association on Monday, also urged the organization of the fire marshals' organization at the meeting of the manufacturers committee on Wednesday. The latter meeting was largely attended by plant superintendents, engineers and others connected with plant operations.

Mr. Dunn in discussing the fire hazards of the modern refineries told of the success of the fire marshals' association which was organized among eastern refiners by the National Petroleum Association. The association was first organized three years ago and the work has been extended so that it now includes safety directors. The plan of organization calls for the appointment of a fire marshal at each plant. The appointee devotes a part of his time to plant investigation with the view of reducing fire hazards to a minimum. He also organizes the plant's fire fighting at some plants. His main work, however, is to prevent fires by the elimination of hazards and securing the co-operation of the plant's operating personnel.

As a means of providing an outside check on plants' hazards the fire marshals are organized in groups and at regular intervals visit all the plants.

In this arrangement each plant is checked by several fire marshals. The fire marshals and safety directors also hold an annual meeting and discuss general problems. In case of fires, investigations as to causes are often made and the information obtained made available to all the fire marshals.

According to Mr. Dunn the fire marshals' organization has aided materially in reducing fire losses at refineries and has contributed to the general operating efficiency by doing away with many of the practices of the past which were wasteful as well as hazardous.

Linings for Stills

Several operators related their own experiences following a paper Tuesday by Dr. J. C. Morrell of the Universal Oil Products Co., on "Non-Metallic Protective Linings for Petroleum Refining Equipment." Doctor Morrell's paper dealt largely with the results obtained with a new ganister lining for cracking chambers.

The results obtained with non-metallic linings have varied widely. The discussion indicated the importance of care in preparing the solution and method of applying it to the walls of the chamber. Curing is also important.

One Mid-Continent operator who has had exceptional success in the use of a lining said before application, the walls of the reaction chambers were sand-blasted and heated to temperatures as high as 900° F. The purpose of this treatment was to remove all traces of oil from the surface. Another operator said that unsatisfactory results in some cases obviously had been due to the failure to secure a homogenous mixture before application.

STANDARD OF INDIANA STARTS SALE OF OILS

CHICAGO, Mar. 15.—The new motor oils of the Standard Oil Co. of Indiana were placed on sale at its stations all over the territory on March 13 and at the stations of the Standard Oil Co. of Nebraska on the same date. They will also be distributed throughout the Rocky Mountain states by the Midwest Refining Co. and its subsidiaries. The names adopted follow the practice of the company to retain the old name and prefix it with the word "New." The oils will be known as "New Iso-Vis" and "New Polarine."

No advance will be made in the prices of these oils from those charged for the lubs sold under the old names. The New Iso-Vis will be refined in five grades and New Polarine in six different grades. The former S.A.E. viscosity numbers will be prominently displayed on the packages for the guidance of both the buyers and sellers of these lubs to aid them in selecting the proper oils for each car or purpose. The colors are lighter than the old oils, ranging from 2½ to 4, N.P.A.

The oils are dewaxed by a special process. The winter oils will have a pour test below zero and the heavy summer oils will have a low pour test for such heavy oils.

ANDERSON LEAVES OLD DUTCH

MUSKEGON, Mich., Mar. 15.—Walter E. Anderson, president and general manager of the Old Dutch Refining Co., which has a plant in the Muskegon oil field, today announced his resignation effective immediately.

Although no definite announcement can be made at this time, it is understood that John Borden, secretary-treasurer of the company, will succeed Mr. Anderson as president and general manager. No changes in policies are expected.

The company is just completing the installation of two 500-bbl. shell stills at its plant on the old Grand Rapids road east of the Muskegon city limits. It is expected the plant will be ready to resume operations at full capacity Monday, March 10. It has been partially shut down for the past few weeks during installation of the new stills.

RUSSIAN GETS CONTRACTS

NEW YORK, Mar. 15.—Amtorg Trading Corp., American representative of the Soviet Government, announces that Russian Oil Products, Ltd., of London, has contracted with the Birmingham Corp., owners of the largest municipally controlled bus line in the world, to supply its gasoline requirements for 1930, approximately 3,020,000 gallons.

Russian oil imports into Great Britain during 1929 approximated 200,000,000 gallons, against 123,000,000 gallons in the previous year.

SHELL BUYS KENTUCKY STATION

COVINGTON, Ky., Mar. 17.—W. F. Burke, owner of the Kentucky Independent Oil Co., announces the sale of its properties to the Shell Petroleum Corp. of St. Louis. The Kentucky Independent Oil Co. owns and operates several bulk plants and 32 service stations. Of these stations, 18 are located in Cincinnati, and the remainder in Covington and its vicinity. Mr. Burke made no statement as to his future plans.

Tide Water Company To Expand Refining And Market Outlets

The Tide Water Associated Oil Co. through its subsidiary companies is planning a steady expansion in its refining and marketing facilities according to Axtell J. Byles, president. Mr. Byles in his annual report to stockholders not only reviewed the operations of the past year but outlined some of its plans for the future.

The Associated Oil Co., the company's West Coast subsidiary, in co-operation with the Mitsubish interests, industrial leaders of Japan, will build a refinery in Japan. It is expected that the plant will be in operation within a year. This arrangement will materially strengthen the company's position in the markets of the Orient.

The company also plans to build a refinery on the Houston, Tex., ship channel as soon as conditions within the industry justify this expenditure. A large site was purchased last year. The refining facilities at its Bayonne, N. J. refinery are constantly being enlarged. The manufacturing department in conjunction with H. A. Brassert & Co. has developed a new type of equipment for the coking and cracking of noncommercial residues and the production of metallurgical coke. This process eliminates hand still cleaning and coke handling. The first license based on this operation has been issued.

Regarding refining and marketing operations Mr. Byles stated in part:

"The volume of business transacted by the company in the past year was the largest in its history, an increase of approximately $20,000,000 over 1928. In view of this increase, 1929 earnings were unsatisfactory. This is primarily due to the fact that Tide Water Oil Co., a large buyer of crude for its eastern refinery, paid about $2,500,000 more for crude in 1929 than for a comparable volume in

(Continued on Page 148)

HOYT OGRAM JOINS BARNSDALL

CHICAGO, Mar. 15.—Hoyt Ogram, for several years associated with the Kanotex Refining Co. of Arkansas City as its sales manager, has resigned and will become associated with the Barnsdall Refineries, Inc., in charge of sales and distribution in Iowa with headquarters at Des Moines.

SHELL BUYS TANKERS

NEW YORK, Mar. 15.—The Anglo-Saxon Petroleum Co., Ltd., owned jointly by Shell Transport & Trading Co., Ltd., and Royal Dutch Co., has ordered the construction of 20 motor-driven tankers of approximately 11,500 tons each with a speed of 12½ knots. The total cost of the 20 tankers will be $3,600,000.

TO BUILD REFINERY

WASHINGTON, D. C., Mar. 15.—It has been reported that the Compania Espanola de Petroleos has signed a contract with an American concern for the construction of an oil refinery at Teneriffe, Canary Islands, which is to cost $1,250,000 and have a capacity of 5,000 bbls. daily. Construction of the plant is to begin immediately. The same company which owns oil lands in Venezuela and has recently made arrangements to supply the monopoly with part of its requirements has offered 40,000 50-peseta shares in order to increase its capital. This has been underwritten by Spanish banks headed by the Banco Exterior de Espana.

The G-R Bentube Section is patented and it is our intention to prosecute all infringements. A suit, charging infringement of our patent No. 1,617,083, has been brought in the U. S. District Court at Wilmington, Delaware.

G-R Bentube Sections Shed Scale *Automatically*

THE large masses of scale which completely cover the bottom of this cooling tower pit were *automatically* shed from G-R Bentube Atmospheric Sections. The superintendent of this plant tells us that at no time since the Bentube Sections were installed has it been necessary to resort to mechanical cleaning to remove scale from the sections.

This unique feature of G-R Bentube Sections is due to their exclusive construction of Admiralty Metal tubes set with an initial curvature into cast iron headers. The changes in temperature that occur during normal operation cause expansion and contraction of the tubes, and the corresponding changes in their curvature keep scale from building up to any material thickness.

G-R Bentube Sections serve over 3,000,000 g.p.d.

The Griscom-Russell Co., 285 Madison Ave., New York
Branches in Principal Oil Centers

Griscom-Russell
Heat Transfer Apparatus

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

	Mar. 18		Mar. 11		Mar. 4	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.06¼		.06¼		.06¼	
56-58 450 endpoint	.05¾	.06	.05¾	.06	.05¾	.06
*58-60 437 endpoint (U. S. Motor)	.067		.065		.065	
*60-62 437 endpoint	.06¼	.06½	.065		†.06¼	.06½
*60-60 400 endpoint	.0675		.0675		.0675	
*64-66 375 endpoint	.0775		†.07¼	.07½	.075	
68-70 360 endpoint	.07½	.07¾	.07½	.07¾	.07½	.08
64-66 437 endpoint (blend)	.06	.06¼	.05¾	.06¼	.05¾	.06¼

*Weighted average prices March 17, 10 and 3, as reported by representative refiners. Sales to jobbers only. †No sales reported. Prices show general market.

NORTH TEXAS—						
56-58 450 endpoint	.05¾	.06	.05¾	.06	.05¾	.06
58-60 450 endpoint	.05¾		.05½	.05¾	.05½	.05¾
58-60 437 endpoint (U. S. Motor)	.057⅛	.06⅛	.05⅞	.06⅛	.05⅞	.06
60-62 400 endpoint	.06⅛	.06¼	.06	.06¼	.06	.06¼
64-66 390 endpoint	.06⅝	.06¾	.06½		.06½	.06¾
64-66 375 endpoint	.07	.07¼	.07	.07¼	.07	.07¼
68-70 360 endpoint	.07½	.07¾	.07½	.07¾	.07½	.07¾
64-66 437 endponit (blend)	.05¾	.06	.05¾	.06	.05¾	.06
***NORTH LOUISIANA—**						
58-60 437 endpoint (U. S. Motor)	.06¾		.06¾		.06¾	
***ARKANSAS—**						
58-60 437 endpoint (U. S. Motor)	.06½	.06¾	.06¾		.06¾	
PENNSYLVANIA—						
52-54 Naphtha	.07¼		.07¼		.07¼	.07½
54-56 Naphtha	.07¼	.07½	.07¼	.07½	.07¼	.07½
58-60 Gasoline	.07½	.07¾	.07½	.07¾	.07¾	.08
60 Gasoline	.07¾	.08¼	.07¾	.08¼	.08	.08¼
62 Gasoline	.07¾	.08½	.07¾	.08¾	.08	.08¼
64 Gasoline	.08	.09	.08	.09	.08½	
68-70 350 endpoint gasoline	.08¾		.08¾		.09½	
CALIFORNIA—						
58-60 437 endpoint (U. S. Motor) domestic	.09	.10	.09	.10	.09	.10
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.06¼	.06⅜	.06¼		.06¼	
56-58 450 endpoint	.05⅞	.06	.05¾	.06	.05¾	.06
58-60 437 endpoint (U. S. Motor)	.06	.06½	.05⅞	.06½	.05¾	.06½
60-62 400 endpoint	.06¼	.06½	.06	.06¼	.06	.06⅜
64-66 375 endpoint	.07	.07¼	.07	.07¼	.07	.07⅜
68-70 360 endpoint	.07½	.07¾	.07½	.07¾	.07½	.07¾
64-66 437 endpoint (blend)	.06¼	.06½	.06¼	.06½	.06¼	.06½
GULF COAST (Export)—						
58-60 (U. S. Motor)	.08		.08		.08	
60-62 400 endpoint	.09		.09		.09	
61-63 390 endpoint	.09¼		.09¼		.09¼	
64-66 375 endpoint	.09		.09		.09	

*Louisiana, Arkansas, Mississippi and East Texas delivery.

NATURAL GASOLINE

	Mar. 18		Mar. 11		Mar. 4	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.05⅝	.05¾	.05½	.05⅝	.05½	.05⅝
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05½		.05⅝	.05½	.05⅝	.05½
Grade B, 76-83.9, 375 e.p., rec. 85%	.04⅝		.04½	.05⅝	.04½	.04⅝
Grade BB, 84-92, 375 e.p., rec. 85%	.04½		.04½		.04⅜	.04½
Grade C, 80-92, 375 e.p., rec. 78%	.04½		.04⅜		.04⅜	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.05⅝	.05¾	.05½	.05⅝	.05½	.05⅝
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05½		.05⅝	.05½	.05⅝	.05½
Grade B, 76-83.9, 375 e.p., rec. 85%	.04⅝		.04½		.04½	.04⅝
Grade BB, 84-92, 375 e.p., rec. 85%	.04½		.04½		.04⅜	.04½
Grade C, 80-92, 375 e.p., rec. 78%	.04½		.04⅜		.04⅜	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.05⅝	.05¾	.05¾		.05¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.04⅝	.04¾	.04¾	.05	.04¾	.05
Grade C, 80-92, 375 e.p., rec. 78%	.04⅝		.04¾		.04¾	
CALIFORNIA—						
75-78 375-390 endpoint	.07¾	.08¼	.07¾	.08¼	.08½	.09
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.05⅝	.05¾	.05⅝	.05¾	.05⅝	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.05½		.05½		.05⅝	.05½
Grade B, 76-83.9, 375 e.p., rec. 85%	.04⅝		.04½		.04⅝	
Grade BB, 84-92, 375 e.p., rec. 85%	.04½		.04½		.04⅜	.04½
Grade C, 80-92, 375 e.p., rec. 78%	.04½		.04⅜		.04⅜	

BURNING OIL

	Mar. 18		Mar. 11		Mar. 4	
OKLAHOMA (Group 3)—						
41-43 water white kerosene	.04¼	.04⅜	.04	.04¼	.04¼	.04⅜
42-44 water white kerosene	.04½	.04¾	.04¼	.04½	.04⅜	.04½
NORTH TEXAS—						
41-43 water white kerosene	.04	.04¼	.03⅞	.04⅛	.04	.04⅛
40-42 water white kerosene	.04		.04		.04	
***NORTH LOUISIANA—**						
41-43 water white kerosene	.04¾	.05	.05	.05⅛	.05	.05⅛
***ARKANSAS—**						
41-43 water white kerosene	.04¾	.05	.05	.05⅛	.05	.05⅛
PENNSYLVANIA—						
43 Kerosene prime white	.05¾		.05¾		.05¾	
45 Kerosene water white	.05⅞	.06	.06		.06	
46 Kerosene water white	.06¼		.06¼	.06½	.06¼	.06½
47 Kerosene water white	.06½		.06½	.06¾	.06½	.06¾
300 Mineral Seal	.07¼		.07	.07¼	.07¼	
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.04½	.05	.04½	.05	.05	.05½
Engine distillate, 43-44, 445 endpoint	.06½	.07	.06½	.07	.07	.07½
Engine distillate, 42-44 480 endpoint	.03	.06½	.06	.06½	.06¾	.07¼
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.04⅛	.04⅜	.04⅛	.04⅜	.04⅛	.04⅜
42-44 water white kerosene	.04½	.04¾	.04¼	.04¾	.04¼	.04¾
GULF COAST (Export)—						
41-43 prime white	.06		.06		.06	
41-43 water white	.07		.07		.07	

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

	Mar. 18		Mar. 11		Mar. 4	
OKLAHOMA (Group 3)—						
Below 18 Fuel Oil, per bbl.	.67½	.72½	.67½	.72½	.70	.75
18-22 Fuel Oil, per bbl.	.70	.75	.70	.75	.75	.80
20-22 Fuel Oil, per bbl.	.72½	.77½	.72½	.77½	.75	.85
22-26 Fuel Oil, per bbl.	.80	.85	.75	.80	.80	.85
24-26 Fuel Oil, per bbl.	.82½	.87½	.80	.85	.80	.90
26-30 Fuel Oil, per bbl.	.85	.90	.82½	.87½	.85	.90
28-30 Fuel Oil, per bbl. (industrial)	.95	1.05	.97½	1.05	1.05	1.10
32-36 Gas Oil (industrial)	.02½		.02½		.02½	.02¾
32-36 Gas Oil (straw color)	.02⅝	.02⅞	.02⅝	.02⅞	.02⅞	.03⅛
36-38 Distillate	.03		.03		.03	.03¼
38-40 Straw Distillate	.03	.03¼	.03	.03¼	.03⅛	.03½
NORTH TEXAS—						
Below 20 Fuel Oil, per bbl.	.57½	.62½	.57½	.62½	.60	.65
24-26 Fuel Oil, per bbl.	.77½	.80	.77½	.80	.80	.90
32-36 Gas Oil (straw)	.02⅜	.02½	.02⅜	.02½	.02⅜	.02⅝
38-40 Straw Distillate	.03		.03		.02⅞	.03⅛
***NORTH LOUISIANA—**						
18-20 Fuel Oil, per bbl.	.85		.85		.85	.90
30-32 Gas Oil	.03	.03⅛	.03	.03⅛	.03	.03⅛
***ARKANSAS—**						
33-36 Distillate	.03	.03¼	.03	.03¼	.03	.03¼
30-32 Gas Oil	.03	.03⅛	.02⅞	.03⅛	.02⅞	.03⅛
16-22 Refinery Fuel Oil, per bbl.	.85	.90	.85	.90	.85	.90
GULF COAST (South Texas)—						
Gas Oil	.03¾	.04	.03¾	.04	.03¾	.04
Bunker C Fuel (cargo lots), per bbl.	.65	.70	.65	.70	.65	.70
Bunker C Fuel (small lots)	.95	1.00	.95	1.00	.95	1.00
PENNSYLVANIA—						
30-34 Fuel Oil	.04½		.04¾		.04¾	
36-40 Fuel Oil	.04½	.04¾	.04¾	.05	.04¾	.05
CALIFORNIA—						
33-36 Distillate	.03	.03½	.03	.03½	.03½	.04
26-32 Distillate	.02	.02½	.02	.02½	.02	.02½
15-20 Fuel Oil, Bunker (at tidewater)	.70	.80	.70	.80	.70	.80
15-20 Fuel Oil (cargo lots), per bbl.	.60	.75	.60	.75	.60	.75
27 plus Diesel, per bbl.	.90	1.05	.90	1.05	.90	1.05
CHICAGO DISTRICT (Based on Group 3)—						
22-26 Fuel Oil, per bbl.	.77½	.82½	.80	.85	.82½	.87½
18-22 Fuel Oil, per bbl.	.67½	.72½	.70	.75	.70	.80
28-30 Fuel Oil, per bbl.	1.00	1.05	1.05	1.10	1.05	1.15
32-36 Gas Oil (zero)	.02¾	.03	.02⅞	.03	.03	.03¼
32-36 Gas Oil (industrial)	.02⅜	.02½	.02⅜		.02½	.02⅜
36-38 Distillate	.02⅞	.03	.03	.03⅛	.03	.03⅛
38-40 Straw Distillate	.03	.03⅛	.03⅛	.03¼	.03⅛	.03⅜

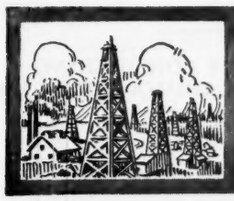
*Louisiana, Arkansas, Mississippi and East Texas delivery.

LUBRICATING OIL AND WAX

	Mar. 18		Mar. 11		Mar. 4	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.06	.07	.06	.07	.06¾	.07
100 vis., 3 color, 20-25 cold test	.05½	.06	.05½	.06	.05¾	.06
150 vis., 3 color, 20-25 cold test	.08	.08½	.08	.08½	.08¼	.08½
150 vis., 4 color, 20-25 cold test	.07¾	.08	.07¾	.08	.07¾	.08
180 vis., 3 color, 23-28 cold test	.09¾	.10	.09¾	.10	.09¾	.10
180 vis., 4 color, 23-28 cold test	.09¼	.09½	.09¼	.09½	.09¼	.09½
180 vis., 5 color, 23-28 cold test	.09	.09¼	.09	.09¼	.09	.09¼
200 vis., 3 color, 23-28 cold test	.11	.11½	.11	.11½	.10¾	.11
200 vis., 4 color, 23-28 cold test	.11	.11¼	.11	.11¼	.10¼	.10½
200 vis., 5 color, 23-28 cold test	.10¼	.10½	.10¼	.10½	.09¾	.10
240 vis., 3 color, 25-30 cold test	.14¼	.14½	.14¼	.14½	.14¼	.14½
240 vis., 4 color, 25-30 cold test	.13¼	.13½	.13¼	.13½	.13¼	.13½
240 vis., 5 color, 25-30 cold test	.12¾	.13	.12¾	.13	.12¾	.13
280 vis., 3 color, 25-30 cold test	.16¾	.17	.16¾	.17	.16¾	.17
280 vis., 4 color, 25-30 cold test	.15½	.16	.15¼	.16	.15¾	.16
280 vis., 5 color, 25-30 cold test	.14¾	.15	.14¾	.15	.14¾	.15
Cylinder Stocks:						
600, steam refined, light green	.09	.11	.09	.11	.10	.12
600, steam refined, dark green	.08	.10	.08	.10	.09	.11
190-200 vis., D color Bright Stock	.41	.42	.41	.42	.41	.42
150-160 vis., D color Bright Stock	.37		.37		.37	
150-160 vis., E color Bright Stock	.32	.35	.32	.35	.32	.35
Waxes:						
124-126 White Crude Scale Wax	.02½	.02⅝	.02½	.02⅝	.02½	.02⅝
PENNSYLVANIA—						
34 Neutral	.07	.07¾	.07½	.07¾	.07¾	
34 Sundebloom	.07¾		.07¾		.07¾	
36 Miners' Neutral	.07½		.07½		.07½	
150, 3 color	.15½	.17	.16	.16½	.16	.17
180, 3 color	.21	.22	.21½	.22	.22	
200, 3 color	.25	.26	.25½	.26	.25½	.26
220, 3 color	.28½	.30	.28½	.30	.29	.30
600, steam refined	.24		.24	.24½	.24	
635, steam refined	.27½	.29½	.27½	.29½	.28	.29½
650, steam refined	.30	.30½	.30	.31	.30	.31
600, Pennsylvania Flash	.32	.33	.32	.33	.31	.33
630, Pennsylvania Flash	.35		.35	.37	.35	
600, E filtered	.28½	.30	.29	.30	.29	.30
600, D filtered	.35		.35		.35	
Pennsylvania Bright Stocks	.40	.41	.40	.41	.40	.42
*122-124 White Crude Scale Wax	.02¾	.03	.03		.03	
124-126 White Crude Scale Wax	.03⅛		.03⅛		.03⅛	

*At New York.

GULF COAST (South Texas)—						
No. 2 color, 100 vis, pale oil	.06½	.06¾	.06½	.06¾	.06½	.06¾
No. 3 color, 200 vis., pale oil	.09¼	.09½	.09¼	.09½	.09¼	.09½
No. 3 color, 300 vis, pale oil	.10¾		.10¾		.10¾	
No. 3½ color, 500 vis., pale oil	.11½	.12	.11½	.12	.11½	.12
No. 4 color, 750 vis., pale oil	.13¼	.13½	.13¼	.13½	.13¼	.13½
No. 5 color, 1200 vis., pale oil	.16		.16		.16	
No. 5 to 6 color, 1200 vis., pale oil	.15		.15		.15	
No. 5 to 6 color, 200 vis., red oil	.08½	.08¾	.08½	.08¾	.08½	.08¾
No. 5 to 6 color, 300 vis., red oil	.09½	.10	.09½	.10	.09½	.10
No. 5 to 6 color, 500 vis., red oil	.10¾	.11¼	.10¾	.11¼	.10¾	.11¼
No. 5 to 6 color, 750 vis., red oil	.12¾		.12¾		.12¾	
No. 2½ color, 200 vis., pale filtered	.11	.12	.11	.12	.11	.12



REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

No. 2½ color, 300 vis., pale filtered	.12	.13	.12	.13	.12	.13
No. 2½ color, 500 vis., pale filtered	.14½	.15	.14½	.15	.14½	.15
No. 2½-3 color, 750 vis., pale filtered	.17	.19	.17	.19	.17	.19
CALIFORNIA—						
130 vis., 2½-3 color	.10¼	.10½	.10¼	.10½	.10¼	.10½
200 vis., 2½-3 color	.11½	.11¾	.11½	.11¾	.11½	.11¾
300 vis., 3-3½ color	.13	.13½	.13	.13½	.13	.13½
350 vis., 3½-4 color	.13½	.13¾	.13½	.13¾	.13½	.13¾
400 vis., 3½-4 color	.15	.15½	.15	.15½	.15	.15½
Red Neutral:						
200 vis., 4½-5 color	.11	.11¼	.11	.11¼	.11	.11¼
300 vis., 5-6 color	.12	.12¼	.12	.12¼	.12	.12¼
400 vis., 5-6 color	.13¼	.14	.13¼	.14	.13¼	.14
500 vis., 4½-5 color	.14¼	.15½	.14¼	.15½	.14¼	.15½
500 vis., 5-6½ color	.15	.15¼	.15	.15¼	.15	.15¼
600 vis., 6½ plus color	.16	.16¼	.16	.16¼	.16	.16¼

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Mar. 18		Mar. 11		Mar. 4	
Gasoline, U. S. Motor, 58-60, 437	.08¼	.08½	.08¼	.08½	.08¼	.08½
Kerosene, water white, 41-43	.07¾		.07¾		.07¾	
*Fuel Oil, Bunker "C," 14-16, per bbl.	1.05		1.05		1.05	
Fuel Oil, Diesel, 28-30, per bbl	2.00		2.00		2.00	
Gas Oil, 32-36 gravity	.04¾	.05¼	.04¾	.05¼	.04¾	.05¼
25 pale Paraffin Oil	.10½		.10½		.10½	
28 pale Paraffin Oil	.07¼		.07¼		.07¼	
285 red Paraffin Oil	.12½		.12½		.12½	
250 red Paraffin Oil	.11½		.11½		.11½	
225 red Paraffin Oil	.10		.10		.10	
200 red Paraffin Oil	.09¼		.09¼		.09¼	
Refined Wax:						
120-122 a.m.p., per lb.	.03⅝		.03⅝		.03⅝	
125-127 a.m.p., per lb.	.04		.03⅞		.03⅞	
130-32 a.m.p., per lb.	.04½		.04⅝		.04⅝	
133-135 a.m.p., per lb.	.05½		.05½		.05½	
135-137 a.m.p., per lb.	.05⅝		.05¾		.05¾	
Petrolatum in barrels, in carload lots, per pound:						
Dark Green	.01⅞		.01⅞		.01⅞	
Amber	.03⅜		.03⅜		.03⅜	
Extra Amber	.03½		.03½		.03½	
Cream	.06⅜		.06⅜		.06⅜	
Lily White	.06½		.06½		.06½	
Snow White	.08⅜		.08⅜		.08⅜	

*Lighterage 5.0 cents a barrel extra.

NEW YORK (BAYONNE) EXPORT PRICES

	Mar. 18		Mar. 11		Mar. 4	
Kerosene, prime white	.07¾		.07¾		.07¾	
Kerosene, water white	.09		.09		.09	
600, steam refined cylinder stocks, in bbls.	.31		.30	.31	.30	.31
635, steam refined	.33		.32	.33	.32	.33
650, steam refined	.37		.36	.37	.36	.37
600, Pennsylvania Flash	.39		.40		.40	
630, Pennsylvania Flash	.42		.43		.43	
600, Warren E	.38½		.39½		.39½	
600, Oil City E	.37½		.38½		.38½	
Light 140-150 Bright Stocks	.48		.48½	.49	.49½	.50
Dark 140-150 Bright Stocks	.47		.47½	.48	.48½	.49

LOS ANGELES EXPORT PRICES

	Mar. 18		Mar. 11		Mar. 4	
Kerosene, water white	.04	.04½	.04	.04½	.04½	.05
*U. S. Motor Gasoline, 53-55, 437 e.p.	.06¼	.06¾	.06¼	.06¾	.06¼	.06¾

*Prices on coastwise shipments.

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Oklahoma City—Same as other Mid-Continent price schedule except Empire Pipe Line Co. posts all oil 40 gravity and above at $1.33 on February 15, 1930.

Corsicana heavy (Jan. 16, 1930)*.....$ .70

Other fields.....See gravity table

*Posted by Magnolia Petroleum Co.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties—See gravity table.

WEST TEXAS

Iatan*.....Same as North Texas

Crane-Upton-Crockett, Pecos, Winkler and Mitchell.....See gravity table, column 3

Howard and Glasscock .....See gravity table, column 11

Chalk†.....$ .65

*Includes Westbrook Field.
†Posted by Humble Oil & Refining Co.

ARKANSAS-NORTH LOUISIANA

Smackover, below 24 gravity (May 20, 1929).....$ .85

Smackover, 24 gravity and above (May 20, 1929).....1.00

Cotton Valley, below 36 gravity (Jan. 17, 1930).....80

Bellevue (Jan. 17, 1930).....1.05

Urania (Jan. 16, 1930).....85

East El Dorado (May 22, 1929).....85

Other fields.....See gravity table

Cotton Valley crude about 36 gravity takes same gravity price schedule as shown for North Louisiana and Arkansas crude in Mid-Continent gravity price table.

Note—Smackover, Cotton Valley and Bellevue posted by Standard Oil Co. of Louisiana and Magnolia Petroleum Co.; Urania Grade A (Jan. 15, 1930)*.....$1.05 posted by Louisiana Oil Refining Corp.; East El Dorado, Magnolia Petroleum Co.

GULF COAST

Grade B.....See gravity table

Jennings, La. (Jan. 15, 1930)†.....1.00

Refugio (Jan. 20, 1930)¶.....55

Sorrento (Jan. 15, 1930)‡.....1.00

Markham (Jan. 15, 1930)§.....75

High Island (Jan. 15, 1930)¶.....85

*Humble Oil & Refining Co. †Gulf Pipe Line Co. ‡Sun Pipe Line Co. §The Texas Pipe Line Co. ¶Posted by Gulf Coast Pipe Line Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.
(Effective Feb. 15, 1930)

Rock Creek, Wyo.....$1.25

Salt Creek.....See gravity table

Big Muddy.....$1.33

Grass Creek, heavy (July 27, 1928).....90

Grass Creek, light.....1.45

Mule Creek (May 21, 1929).....1.20

Elk Basin.....1.45

Lance Creek.....1.53

Poison Spider (March 14, 1927).....1.00

Notches (March 14, 1927).....65

Rex Lake (February 22).....1.10

Osage (May 21, 1929).....1.65

Lost Soldier (contract, May 22).....1.05

Hamilton Dome (March 14, 1927).....85

Pedro (May 21, 1929).....1.25

Greybull (May 21, 1929).....1.65

Four Bear (May 21, 1929).....85

Cat Creek (Montana) (Feb. 15, 1930).....1.45

Sunburst (Montana) (Feb. 15, 1930).....1.65

Torchlight (May 21, 1929).....1.65

Hogback (New Mexico) (May 21, 1929).....1.70

Artesia (New Mexico) (Feb. 15, 1930).....1.00

Note—Salt Creek, Osage, Cat Creek, Grey-

(Continued on Page 142)

CRUDE OIL GRAVITY TABLE

Gravity—	Okla., Kans., N. C. Texas 1	No. La. and Arkansas 2	Crane, Upton, Crockett, Winkler, Pecos, Mitchell, (West Texas) Lea, N. Mex. 3	Stephens, Ark. 4	Wheeler (Texas Panhandle) 5	Gray County (Texas Panhandle) 6	Carson and Hutchinson (Texas Panhandle) 7	Salt Creek, Wyo. 8	Grade B and Light Crude (G. Coast) 9	Somerset (South Central Texas) 10	Howard and Glasscock, W. Tex. 11
24 and above.	....	....	....	....	....	....	....	....	....	....	....
Below 24	....	....	....	....	....	....	....	....	....	....	....
Below 25	.60	....	.55	....	....	....	....	....	.90	....	.58
25 to 25.9	.66	....	.58	....	....	....	....	....	.93	....	.58
26 to 26.9	.72	....	.61	....	....	....	....	....	.96	....	.61
27 to 27.9	.78	....	.64	....	....	....	....	....	.99	....	.64
Below 28	....	.78	....	.90	.70	.69	.72	....	....	....	....
28 to 28.9	.84	.84	.67	.94	.70	.69	.72	....	1.02	....	.66
29 to 29.9	.90	.90	.70	.98	.70	.75	.72	.90	1.05	....	.69
30 to 30.9	.96	.96	.73	1.02	.76	.81	.72	.96	1.08	....	.70
31 to 31.9	1.02	1.02	.76	1.06	.82	.87	.72	1.02	1.11	....	.72
32 to 32.9	1.08	1.08	.79	1.10	.88	.93	.78	1.08	1.14	1.05	.74
33 to 33.9	1.11	1.11	.82	....	.91	.96	.81	1.11	1.17	1.07	.76
34 to 34.9	1.14	1.14	.85	....	.94	.99	.84	1.14	1.20	1.09	.78
35 to 35.9	1.17	1.17	.88	....	.97	1.02	.87	1.17	1.23	1.11	.80
36 to 36.9	1.20	1.20	.91	....	1.00	1.05	.90	1.20	....	1.13	.82
37 to 37.9	1.23	1.23	....	....	1.03	1.08	.93	1.23	....	1.15	....
38 to 38.9	1.26	1.26	....	....	1.06	1.11	.96	....	....	1.17	....
39 to 39.9	1.29	1.29	....	....	1.09	1.14	.99	....	....	....	....
40 to 40.9	1.32	1.32	....	....	1.12	1.17	1.02	....	....	....	....
41 to 41.9	1.35	1.35	....	....	1.15	1.20	1.05	....	....	....	....
42 to 42.9	1.38	1.38	....	....	1.18	1.23	1.08	....	....	....	....
43 to 43.9	1.41	1.41	....	....	1.21	1.26	1.11	....	....	....	....
44 and above.	1.44	1.44	....	....	1.24	1.29	1.14	....	....	....	....

Column 1, Note—Above prices posted by Prairie Oil & Gas Co. on February 15, 1930, by Sinclair Oil & Gas Co. February 13, 1930. On January 15, 1930, Humble Oil & Refining Co. posted North Central Texas crude at following prices: Below 25 gravity 60 cents; a 6-cent differential added per degree to 32-32.9 gravity at $1.08 and a 3-cent differential above making 44 gravity and above at $1.44. The Carter Oil Co. posted this schedule for Oklahoma and Kansas, January 16. Same date Magnolia posted these prices in North Central Texas. On January 17, Magnolia posted the schedule for Oklahoma and Kansas.

North Central Texas—Includes Ranger, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Nocona and Moran Pools.

Column 2—Arkansas and North Louisiana—(Caddo, Bull Bayou, Crichton, Cotton Valley above 36 gravity, DeSoto, Haynesville, Homer and El Dorado only). Texas Pipe Line Co., January 15, 1930. Standard Oil Co. of Louisiana, Louisiana Oil Refining Co., Gulf Pipe Line Co., Magnolia Petroleum Co., January 16, 1930.

Column 3—Humble Oil & Refining Co., January 15, 1930, and Magnolia Petroleum Co., January 16, 1930.

Column 4—Atlantic Oil Producing Co. and Louisiana Oil Refining Corp., May 21, 1929.

Columns 5, 6 and 7—Humble Oil & Refining Co., January 15, 1930, and Magnolia Petroleum Co., January 16, 1930. Adopted by Prairie Oil & Gas Co., February 15.

Column 8—Midwest Refining Co., February 15, 1930. All crude over 37 gravity $1.23 per barrel.

Column 9—Humble Oil & Refining Co., January 15, 1930 (schedule ends 35 and above).

Column 10—Grayburg Pipe Line Co. and Pioneer Oil & Refining Co., April 7.

Column 11—Humble Oil & Refining Co., January 15, 1930, Magnolia posted Howard-Glasscock crude same schedule as West Texas, January 16, 1930.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co.-Union Oil Co. (Effective March 11, 1930)

Gravity—	Seal Beach, Salt Lake, Newport, Summerland, Lawndale, Los Angeles Fullerton, Richfield, Torrance, Olinda-Brea, Alamitos Heights, Huntington Beach, Signal Hill, Inglewood 1	Whittier, La Habra, Coyote Hills 2	Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills 3	Montebello 4	Santa Fe Springs (Nov. 8) 5	Santa Maria, Coalinga 6	Wheeler Ridge, Fruitvale 7	Orcutt, Ventura, Rincon 8	Ventura Avenue (Nov. 8) 9	Elwood Terrace 10	Athens, Rosecrans, Dominguez 11
14 to 14.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
15 to 15.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
16 to 16.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
17 to 17.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
18 to 18.9	.76	.76	.62	.71	....	.62	.62	.65	.76	....	....
19 to 19.9	.82	.82	.70	.77	....	.70	.70	.70	.82	....	....
20 to 20.9	.88	.87	.78	.83	....	.78	.78	.78	.88	....	....
21 to 21.9	.94	.93	.86	.90	.92	.86	.86	.90	.91	....	....
22 to 22.9	1.00	.98	.94	.97	.95	.94	.94	.95	.94	....	....
23 to 23.9	1.07	....	1.02	1.05	1.01	1.02	1.02	1.02	1.00	....	....
24 to 24.9	1.14	....	1.09	1.11	1.07	1.07	1.07	1.10	1.07	....	1.14
25 to 25.9	1.21	....	1.16	1.17	1.13	1.12	1.12	1.18	1.14	....	1.19
26 to 26.9	1.28	....	1.23	1.23	1.19	1.17	1.17	1.26	1.21	....	1.24
27 to 27.9	1.35	....	1.30	1.29	1.25	1.23	1.22	....	1.28	....	1.29
28 to 28.9	1.42	....	1.35	1.35	1.31	1.27	....	....	1.35	....	1.34
29 to 29.9	1.46	....	1.41	1.38	1.37	1.31	....	....	1.39	....	1.39
30 to 30.9	1.50	....	1.47	1.41	1.43	1.35	....	....	1.43	....	1.45
31 to 31.9	1.55	....	1.53	....	1.49	1.39	....	....	1.48	....	1.51
32 to 32.9	1.60	....	1.59	....	1.55	1.43	....	....	1.53	....	1.57
33 to 33.9	1.65	....	1.65	....	1.60	1.47	....	....	1.59	....	1.64
34 to 34.9	1.70	....	....	....	1.65	1.51	....	....	1.65	1.32	1.71
35 to 35.9	1.75	....	....	....	1.70	1.55	....	....	1.71	1.39	1.78
36 to 36.9	1.80	....	....	....	1.75	....	....	....	....	1.46	1.84
37 to 37.9	1.85	....	....	....	1.80	....	....	....	....	1.53	1.90
38 to 38.9	1.90	....	....	....	1.85	....	....	....	....	1.60	1.96
39 to 39.9	....	....	....	....	1.90	....	....	....	....	1.66	2.02
40 to 40.9	....	....	....	....	....	....	....	....	....	1.72	2.08
41 to 41.9	....	....	....	....	....	....	....	....	....	1.78	2.14
42 to 42.9	....	....	....	....	....	....	....	....	....	1.84	2.20

Kern River, Newhall-McKittrick, Mount Poso and Round Mountain 12 to 13.9 gravity, 45 cents; 14 gravity and above, 55 cents, effective March 11. On December 1, 1928, the Union Oil Co. posted Midway-Sunset, Elk Hills, Buena Vista, Lost Hills and Coalinga crude as follows: 11 to 13.9 gravity at 45 cents; 14 gravity and above, 55 cents.

Column 1—Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity.

Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

Column 3—Kern River, Newhall and McKittrick, 11 to 19.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 11 to 33.9 gravity; lost hills, 11 to 34.9 gravity; oil below 14 gravity posted at 45 cents.

Column 6—Oil below 14 gravity posted at 45 cents.

Columns 8 and 9—Posted by Union Oil Co. only.

Kettleman Hills, 55 gravity and above, $1.65 (posted by Standard Oil Co. of California).

TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Mar. 18

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Chicago†	17.0	18.0	3.0	13.0
Decatur, Ill.	17.2	18.2	3.0	13.1
E. St. Louis	16.4	17.4	3.0	12.2
Joliet	17.4	18.4	3.0	13.3
Peoria	17.2	18.2	3.0	13.1
Quincy	17.2	18.2	3.0	12.9
Davenport, Ia.	17.5	18.5	3.0	13.3
Des Moines	17.5	18.5	3.0	13.3
Keokuk	17.5	18.5	3.0	13.3
Sioux City	17.1	18.1	3.0	12.9
Duluth, Minn.	18.5	19.5	3.0	13.9
Mankato	18.1	19.1	3.0	13.7
Minneapolis	18.2	19.2	3.0	13.9
LaCrosse, Wis.	17.2	18.2	2.0	14.0
Milwaukee	16.1	17.1	2.0	12.9
Madison	16.3	17.3	2.0	13.1
Detroit, Mich.	17.8	18.8	3.0	14.7
Grand Rapids	17.7	18.7	3.0	14.6
Saginaw	17.9	18.9	3.0	14.8
Evansville, Ind.	18.0	19.0	4.0	14.0
Fort Wayne	18.4	19.4	4.0	14.4
Indianapolis	18.2	19.2	4.0	14.2
South Bend	18.4	19.4	4.0	14.4
Fargo, N. D.	19.9	20.9	3.0	15.9
Huron, S. D.	19.3	20.3	4.0	14.7
Sioux Falls	18.1	19.1	4.0	14.4
K. C., Mo.*	16.9	17.9	3.0	11.6
Springfield*	16.8	17.8	3.0	12.5
St. Louis*	15.9	16.9	2.5	12.3
St. Joseph	16.5	17.5	2.0	12.2
Wichita, Kans.	15.8	14.8	3.0	11.8
Bartlesville, Ok.	16.5	17.5	4.0	11.5

*State tax 2 cents; remainder city tax.

†Effective February 20, discounts on Q.D.A. in Chicago district 2 cents off service station price on purchases of 500 gallons or more per month and 4 cents on purchases of 1,000 gallons or more per month.

The following quantity discounts from the service station price are allowed on monthly sales of gasoline; 2,000 gallons or less, 2 cents; more than 2,000 and less than 6,000 gallons, 2½ cents; more than 6,000 gallons, 3 cents; 100,000 gallons or more 4½ cents. Discounts are allowed each month and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	14.7	12.9
V. M. & P. Naphtha	16.7	13.9
Cleaner's naphtha	17.0	14.9
Stanisol	17.0	15.4

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9.0
100 to 349 gallons	8.0
350 gallons or more	7.5

Note—Outside Chicago furnace oil discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Dallas, Tex.	16.0	20.0	4.0	12.0
Fort Worth	16.0	19.0	4.0	12.0
Houston	15.0	19.0	4.0	11.0
San Antonio	15.0	19.0	4.0	11.0
El Paso	16.0	20.0	4.0	14.0
Texarkana	17.0	19.0	4.0	12.0
Muskogee*	14.0	16.0	4.0	10.0
Okla. City*	15.0	18.0	4.0	10.0
Tulsa*	15.0	19.0	4.0	10.0
Ft. Smith, Ark.	14.0	16.0	5.0	12.0
Little Rock	18.0	18.0	5.0	13.0

*Gasoline tank wagon price to dealers 2 cents under posted tank wagon.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Denver, Colo.	16.0	18.0	4.0	15.5
Pueblo	18.0	19.0	4.0	15.5
Grand Junction	22.0	25.0	4.0	19.0
Casper, Wyo.	18.0	21.0	4.0	14.0
Cheyenne	19.5	22.5	4.0	15.5
Butte, Mont.	22.5	26.5	5.0	20.0
Helena	22.5	26.5	5.0	20.0
Salt Lake, Utah	20.0	23.0	3.5	17.0
Albuquerque, N. M.	20.0	22.0	5.0	17.0
Boise, Idaho	22.5	26.5	5.0	19.0
Twin Falls	22.5	26.5	5.0	19.0

PENNSYLVANIA—DELAWARE AND PART NEW ENGLAND

The Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Pittsburgh, Pa.	15.0	*21.0	...	13.0
Philadelphia	15.0	*21.0	...	13.0
Scranton	15.0	*21.0	...	13.0
Allentown	15.0	*21.0	...	13.0
Altoona	15.0	*21.0	...	13.0
Erie	15.0	*19.0	...	13.0
Dover, Del.	18.0	20.0	3.0	13.0
Wilmington	18.0	20.0	3.0	13.0
Springf'd, Mass.	15.5	17.5	2.0	12.5
Worcester	15.3	17.3	2.0	12.3
Boston	14.5	16.5	2.0	11.2
Providence, R.I.	14.7	16.7	2.0	11.7
Hartford, Conn.	15.5	17.5	2.0	12.5
New Haven	15.6	17.6	2.0	12.6

*Includes tax of 4.0 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the State. The Atlantic Refining Co. recognizes a 2-cent per gallon discount on gasoline from its posted tank wagon markets on sales to dealers for purposes of resale. The Atlantic Refining Co. also recognizes a maximum discount of 2 cents per gallon on gasoline to commercial accounts under contract for one year.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Albany, N. Y.	15.6	17.6	2.0	14.6
New York*	14.3	16.3	2.0	13.3
Buffalo	15.8	17.8	2.0	13.8
Rochester	16.0	18.0	2.0	13.0
Syracuse	16.8	18.8	2.0	13.8
Boston, Mass.	14.5	16.5	2.0	12.5
Augusta, Me.	17.8	19.8	4.0	13.8
Manch't'r, N. H.	17.4	19.4	4.0	13.4
Burlington, Vt.	17.6	19.6	4.0	14.3

*Prices in steel barrels.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlanta, Ga.	20.0	21.0	4.0	15.5
Augusta	21.0	23.0	4.0	15.5
Macon	21.0	23.0	4.0	14.0
Savannah	20.0	22.0	4.0	14.0
Birm'ham, Ala.	20.0	22.0	5.0	14.5
Mobile	17.0	19.0	4.0	13.5
Montgomery	20.0	22.0	4.0	15.0
Clarks'le, Miss.	18.0	20.0	5.0	12.5
Jackson	19.0	21.0	5.0	13.0
Natchez	18.5	20.5	5.0	13.0
Gulfport	20.5	22.5	5.0	13.0
Vicksburg	18.5	20.5	5.0	13.0
Jack'ville, Fla.	20.0	22.0	6.0	14.0
Miami	21.0	23.0	6.0	14.0
Pensacola	18.0	20.0	6.0	13.5
Tampa	20.0	22.0	5.0	13.0
Lexington, Ky.	18.0	20.0	5.0	14.5
Covington	19.0	20.0	5.0	14.5
Louisville	19.0	21.0	5.0	13.0
Ashland	20.0	21.0	5.0	15.0
Catlettsburg	20.0	21.0	5.0	15.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. Pensacola, Birmingham and Mobile taxes include 1-cent city levy. Gulfport tax includes privilege tax of 2 cents in addition to state tax.

Effective April 2, price to dealers 2 cents under posted tank wagon price.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlantic City	16.5	18.5	2.0	13.5
Newark, N. J.	15.5	17.5	2.0	12.5
Annapolis, Md.	18.0	20.0	4.0	13.0
Baltimore	17.2	19.2	4.0	10.5
Cumberland	19.0	21.0	4.0	14.0
Washington	15.7	17.7	2.0	12.7
Danville, Va.	19.8	21.8	5.0	13.8
Norfolk	18.3	20.3	5.0	11.0
Petersburg	19.3	21.3	5.0	13.3
Roanoke	20.0	22.0	5.0	14.0
Richmond	18.7	20.7	5.0	12.7
Charles'n, W.Va.	18.5	20.5	4.0	12.5
Keyser	19.1	21.1	4.0	14.1
Parkersburg	17.2	19.2	4.0	11.2
Wheeling	18.4	20.4	4.0	12.4
Charlotte, N. C.	20.3	22.0	5.0	14.3
Hickory	20.8	22.8	5.0	14.8
Mt. Airy	20.5	22.5	5.0	14.5
Salisbury	20.7	20.7	5.0	14.7
Charleston, S.C.	19.3	21.3	6.0	12.3
Columbia	21.2	23.2	6.0	14.2

A 2-cent per gallon discount off the gasoline tank wagon price is offered to dealers.

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
San Francisco	20.0	23.0	3.0	15.5
Los Angeles	19.5	22.5	3.0	15.5
Reno, Nev.	25.0	28.0	4.0	19.0
Portland, Ore.	19.5	23.5	3.0	16.5
Seattle, Wash.	19.5	22.5	3.0	16.5
Tacoma	20.5	23.5	3.0	16.5
Spokane	23.5	26.5	3.0	20.5
Phoenix, Ariz.	18.0	22.0	4.0	20.0

Above prices are at company's plant or depots as company does not operate stations. A 4-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where discount is 1 cent.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Omaha	18.25	20.25	4.0	13.25
McCook	19.75	21.75	4.0	14.75
Norfolk	18.75	20.75	4.0	13.75
N. Platte	19.75	21.75	4.0	14.50
Scottsbluff	19.75	21.75	4.0	14.25

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Ohio points*	18.0	19.0	4.0	†12.0

*Dealers and commercial accounts 2 cents under tank wagon.

†Service station price 14 cents.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
N. Orleans, La.*	15.0	15.0	5.0	12.0
Baton Rouge	15.0	15.0	4.0	14.0
Alexandria	16.0	18.0	5.0	14.0
Lafayette†	17.0	19.0	5.0	14.0
Lake Charles†	16.0	18.0	5.0	14.0
Shreveport	15.0	17.0	4.0	14.0
Knoxv'le, Tenn.	19.0	21.0	5.0	16.0
Memphis	17.0	19.0	5.0	12.5
Chattanooga	19.0	21.0	5.0	16.0
Nashville	18.0	20.0	5.0	16.0
Bristol	19.0	20.0	5.0	14.0
Lt. Rock, Ark.	16.0	18.0	5.0	13.0

*Tax of 5 cents includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax and 1-cent parish tax.

†Includes 1-cent parish tax.

TANK WAGON CHANGES

Continental Oil Co. advanced the gasoline tank wagon and station prices 1 cent in Idaho to equalize the advance in the state tax on February 25 from 4 cents to 5 cents. On March 8 the Continental reduced the gasoline tank wagon price 2 cents and the station price 3 cents in Denver and reduced the gasoline station price 2 cents in Pueblo, Colo.

Atlantic Refining Co. reduced the gasoline tank wagon and station prices and kerosene 1 cent in Massachusetts and Rhode Island and the kerosene price 1 cent in Connecticut on March 6.

Standard Oil Co. of New Jersey reduced the gasoline station price 2 cents in Salisbury, N. C., to 20.7 cents.

Standard Oil Co. of Kentucky reduced the gasoline tank wagon and station prices 2 cents in Mobile, Ala., to 17 cents and 19 cents on March 11 and reduced the kerosene price 1½ cents in Macon, Ga., to 14 cents on March 7.

CRUDE PRICE CHANGES

Standard Oil Co. of California and the Union Oil Co. advanced prices in all California fields except Kettleman Hills on March 11 from 5 cents per barrel on the lower gravities to 25 cents on the higher gravities. The new prices are detailed in tabular form in the regular crude price columns.

DOHERTY CONSIDERING OKLAHOMA-GULF LINE

The Doherty interests are tentatively considering, but have not yet definitely decided upon construction of 12-inch pipe line approximately 500 miles in length from the Oklahoma City Field to a site on the Houston Ship Channel.

The direct route from Oklahoma to Gainesville, and Corsicana to Houston would be followed in the construction of the pipe line. Aerial survey of the route has been completed, according to reports.

CARBON BLACK GAS TAX

AUSTIN, Tex., Mar. 15.—A proposal to tax gas used in the manufacture of carbon black is contained in a House bill, which would place a tax of one-quarter of a cent a pound on all carbon black manufactured.

CRUDE OIL PRICES

(Continued from Page 141)

bull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin.

SOUTH CENTRAL AND SOUTHWESTERN TEXAS

Darst Creek (Jan. 15, 1930)*	$1.05
Luling (Jan. 16, 1930)*	.75
Mirando (Jan. 15, 1930)†	.75
Salt Flat (Jan. 15, 1930)§	1.05
Rockdale Minerva (April 15):	
Below 28 gravity	1.25
28-38.9 gravity	1.27
39-39.9 gravity	1.29
40 and above	1.31
Thrall‡	..
Callihan (May 15)	1.75
Lytton Springs (Lockhart)	See gravity table
Somerset	See gravity table

*Posted by Magnolia Petroleum Co.

†Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co.

‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight.

§Humble Oil & Refining Co.

EASTERN STATES

Joseph Seep Purchasing Agency

(Effective Feb. 17, 1930)

Penna Grade Oil in New York Transit Lines (New York)	$2.80
Bradford District Oil in National Transit Lines (Pennsylvania)	2.80
Penna Grade Oil in National Transit Lines (Pennsylvania)	2.80
Penna Crude Oil in Southwest Pennsylvania Lines (West Virginia)	2.75
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	2.65
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	2.45
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (May 22, 1929)	1.75
Corning 35-cent Grade Oil in Buckeye Pipe Line Co.'s Line (Feb. 17, 1930)	1.55
Corning 25-cent Grade Oil in Buckeye Pipe Line Co.'s lines (Feb. 17, 1930)	1.65
Somerset Oil in Cumberland Pipe Line Lines (Kentucky) (Feb. 17, 1930)	1.37
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky) (Jan. 29)	.60
Wayne district oil in Cumberland Pipe Lines (Feb. 17, 1930)	1.24

*Oil run prior to July 1, 1929, $2.95.

MIDDLE WESTERN STATES

Ohio Oil Co.

(Effective Feb. 15, 1930)

Lima	$1.65
Wooster	1.75
Illinois	1.60
Indiana	1.42
Princeton	1.60
Plymouth	1.18
Waterloo (November 17, 1926)	1.85
Western Kentucky	1.50
Dundee, Mich. (Feb. 13, 1930)‖	
Same as Mid-Continent gravity scale	
Upper and Lower Traverse sands, Mich.‖	
Same as Mid-Continent gravity scale	
Midland, Mich. (Feb. 6, 1930)*	1.35
Saginaw, Mich., Saginaw sand (February 10)†	1.89
Saginaw, Mich., Berea sand (February 10)†	1.79
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky (March 15)‡	1.50
Oil in line in Stoll Oil Refinery Co. in Oil City, Ky. (Feb. 19, 1930)§	1.45
Oil Springs (Canada) (Feb. 15, 1930)¶	2.12
Petrolia (Canada) (Feb. 15, 1930)¶	2.15

*Posted by Pure Oil Co.

†Posted by Sun Oil Co.

‡Posted by Paragon Development Co.

§Posted by Stoll Oil Refining Co.

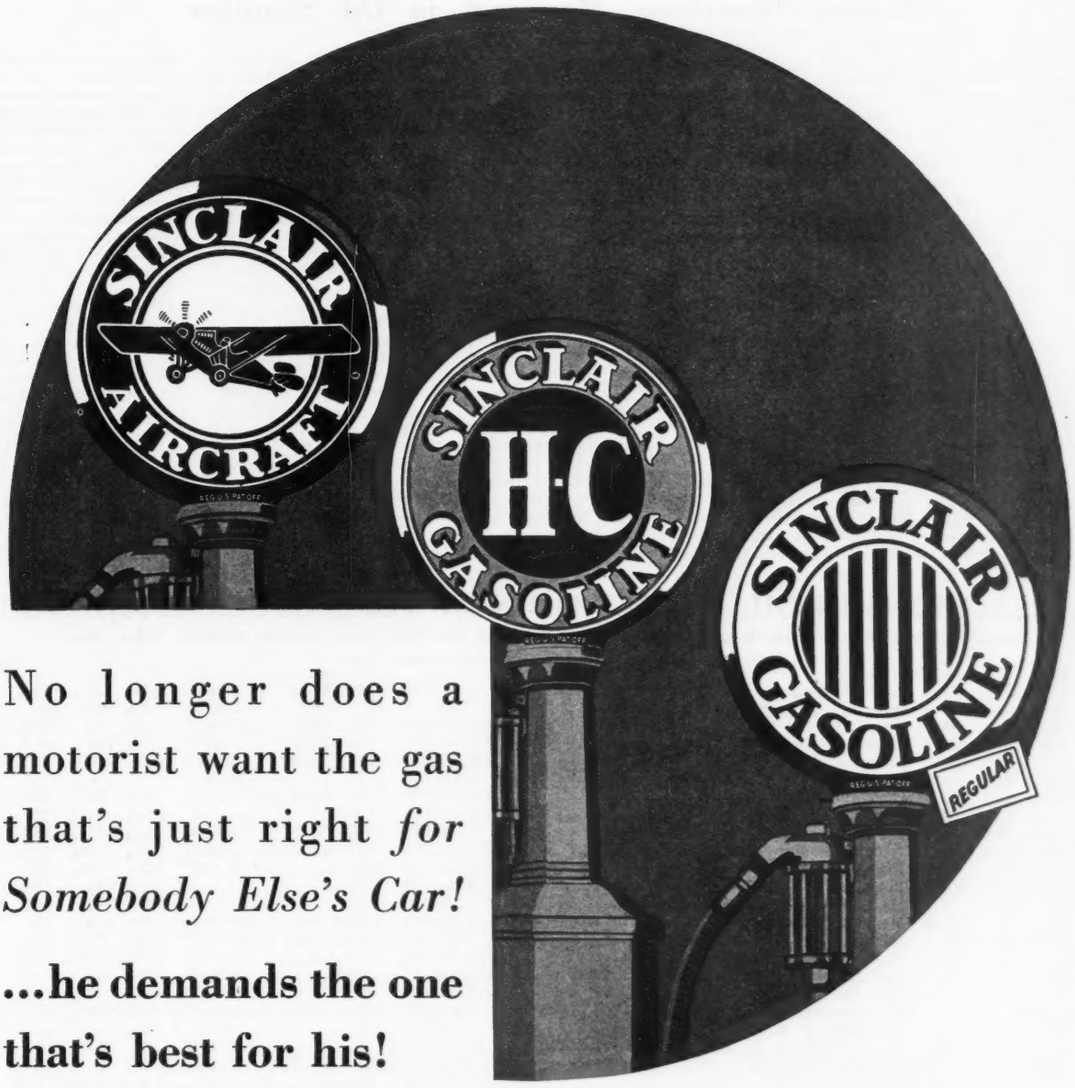
¶Posted by Imperial Oil Co., Ltd.

‖Posted by Standard of Indiana for beat shipment.

MEXICAN CRUDE

Panuco*	$ .67

*Based on February transactions.



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SINCLAIR THREE-GAS SERVICE

President Holmes Hopes for Stability

Chief Executive of the Texas Corp. in Annual Report Reviews Operations. Movement in Oil Securities

The Texas Corp. materially widened its operations during the past year, both in the expansion of domestic production and sales, and in the acquisition of foreign acreage, says R. C. Holmes, president, in his annual report to stockholders. Earnings for the year available for dividends and surplus, after deductions for federal income taxes and all reserves, were $48,318,072, equivalent to $5.12 a share on the average of 9,433,164 shares outstanding during the year, against $45,073,879, or $5.56 per share on the average of 8,107,763 shares outstanding in 1928. As of April 2, 1929, a total of 1,403,671 new shares were issued and became outstanding pursuant to the offer to stockholders on October 16, 1928, of additional stock at $40 per share in the ratio of one share of new stock to each six shares then held.

"The desirability of providing more fully for the financial needs of the corporation," says Mr. Holmes, "became evident after the middle of the year, and at a special meeting of the board plans were made for the sale of $100,000,000 par value convertible sinking fund 5 per cent gold debentures, to be dated October 1, 1929, and maturing October 1, 1944. On November 6, 1929, the stockholders ratified and approved the action of the directors and officers in the issuance and sales of the debentures, and further authorized an increase in the capital stock from $250,000,000 to $350,000,000, or an increase in the number of $25 par value authorized shares from 10,000,000 to 14,000,000. The purpose of the stock increase was to make provision for the conversion feature of the debentures and to have treasury stock available for possible future requirements."

Investment expenditures during the year by departments or divisions of activities were as follows:

Producing	$21,164,067.09
Refining	27,845,823.79
Sales—domestic and foreign	19,072,952.83
Tank farms and tankage	3,531,541.16
Pipe lines	9,129,973.28
Other facilities	1,818,262.87
Total	$82,562,621.02

Gross production of crude oil for the year amounted to 50,410,685 bbls., an increase over 1928 of 6,140,715 bbls., or 13.9 per cent. The company's net interest in the production, plus oil produced by others for The Texas Company's account, amounted to 43,599,124 bbls., compared with 38,594,965 bbls. in 1928. Gross daily production of the company on December 31, 1929, was 129,110 bbls., with approximately 43,000 bbls. per day shut in.

Acreage held at the end of 1929 by the Texas Corp. amounted to 5,631,424 acres.

As a result of excessive overproduction in California, principally in the deeper sands at Santa Fe Springs, the company's stocks of crude oil in California during the year increased 7,457,653 bbls.

Natural gasoline production by the Texas Corp. in 1929 gained 1,231,720 bbls., or 64.2 per cent, over 1928, the increase being principally in California.

Texas Petroleum Co., Venezuelan subsidiary of the Texas Corp., acquired 53,906 acres of exploration and exploitation concessions in 1929, making the total acreage held at the end of the year 160,273 acres. Through the California Petroleum Corp. of Venezuela the company had a half interest in 731,327 acres of exploration and exploitation concessions in Venezuela. The Texas Petroleum Co. held in Colombia at the close of 1929 a total of 797,810 acres in fee and under option.

Pipe line runs by the Texas Corp. during 1929 aggregated 61,168,061 bbls., an increase of 9,068,596 bbls. over the previous year, and in addition 2,796,072 bbls. of distillates were moved to Port Arthur from the Texaco refineries at Tulsa, Dallas, Shreveport and Houston. Oil transported by the company's pipe lines for the account of others totaled 2,630,213 bbls. in 1929.

Three major pipe line projects were completed and started operating during 1929. These main pipe line projects, with branch lines, etc., aggregate 2,100 miles.

Crude oil run to stills by the Texas Corp. during 1929 amounted to 57,323,200 bbls., an increase over the previous year of 2,239,677 bbls., or 4.1 per cent. Gasoline manufactured during the year aggregated 29,057,997 bbls., an increase of 3,853,977 bbls., or 15.3 per cent. The percentage of gasoline manufactured from crude run at refineries, excluding operations of the California company, reached a new high average for the year or 53.9 per cent, compared with 51.1 per cent in 1928. Including the California company,

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1930 High	1930 Low	Week ended March 12 Sales	Week ended March 12 High	Week ended March 12 Low	Week ended March 12 Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1927 High	1927 Low	1928 High	1928 Low	1929 High	1929 Low
21⅞	18	4,700	21⅜	20½	21	Amerada Corp.	(sh)	922,075	N.P.	50cQ	1-31-30	37⅝	27⅝	43⅞	27½	42⅝	17½
34⅛	20½	14,600	34⅛	30⅝	32	American Republics Corp.	(sh)	209,180	N.P.	.....	3-20-29	82⅛	35⅛	85	51⅛	64¾	12½
41	32½	230	41	38	41	Associated Oil		$57,260,300	$25	50cQ	12-31-29	50¼	35	53⅜	37½	47¼	34½
47¾	36¼	53,700	47¾	44¾	46¾	Atlantic Refining		$50,000,000	$25	25cQ	12-16-29	131⅝	104	66⅝	50	77⅞	30
26⅞	20⅛	43,000	26⅞	25½	26½	Barnsdall Corp.		$45,235,650	$25	50cQ	12- 7-29	35½	20¾	53	20	49⅛	20
23⅞	19½	27,400	23⅞	22⅞	23⅜	Continental Oil of Delaware	(sh)	4,741,554	N.P.	.....	3-31-27	..	..	..	..	47⅛	18
61½	49⅛	13,500	61½	58¼	59½	General Asphalt		$20,785,400	N.P.	50cQ	.....	96¾	65	94⅞	68	94¾	42¼
84½	52¼	26,500	84½	75	82	Houston Oil		$25,000,000	$100	.....	.....	175⅜	60⅛	167	79	109	26
24⅞	20¼	9,700	24⅞	23⅝	24¾	Independent Oil & Gas	(sh)	1,333,572	N.P.	50cQ	1-31-30	32¾	17⅝	38⅜	21¾	39⅜	17¾
20⅝	17¾	18,200	20⅝	18¾	20	Indian Refining		$12,307,370	$10	.....	5-31-24	12⅛	7⅝	39⅝	9	53	13⅛
25½	21¼	300	25½	25	25½	Lago Oil & Transport	(sh)	3,992,122	N.P.	.....	5- 1-27	37¾	20½	39⅛	27⅜	38⅜	16½
9½	8	3,000	9	8¾	9	Louisiana Oil Refining	(sh)	1,190,063	N.P.	.....	.....	18⅛	10	19¾	9⅜	18	7
8	5¼	1,800	8	7⅛	8	Maracaibo Oil	(sh)	330,000	N.P.	.....	.....	22¾	12	25½	12½	18½	5⅛
29⅝	16⅛	78,900	28¾	25	27⅛	Mexican Seaboard	(sh)	1,276,873	N.P.	.....	12-15-20	9¼	3	73	4⅝	69⅜	9¼
28	23½	500	27¼	26⅛	27	Mid-Continent Petroleum	(sh)	1,857,912	N.P.	50cQ	12-15-29	39⅜	25½	44½	25⅛	39⅞	22⅛
..	..	No sales.				Middle States, ctfs.		$24,298,850	$10	.....	7- 1-23	3¾	1⅝	7⅜	2⅜	5⅛	¾
60⅛	51⅝	200	53	53	53	Pan American P. & T.		$50,084,700	$50	.....	10-20-27	65⅞	40⅛	54⅞	38¼	69	40½
60¼	50½	3,900	55	52⅞	54⅝	Pan American P. & T. "B"		$121,105,050	$50	.....	11-15-24	66⅜	40¼	58⅞	37¾	69¼	40½
..	..	No sales.				Pan American Western B§		400,000	N.P.	.....	1-30-27	37⅞	16¾	28⅜	15½	18½	13⅝
6¾	4⅛	2,500	6	4⅞	5⅞	Panhandle P. & R.	(sh)	199,370	N.P.	.....	.....	18⅞	8	21¾	11½	15¼	3
50¼	47½	200	50⅛	50⅛	50⅛	Panhandle P. & R. pfd.		$2,564,400	$100	.....	7- 2-23	83	54	108	70	76	47½
37¼	29⅛	36,800	37¼	35½	36¾	Phillips Petroleum	(sh)	2,406,796	N.P.	50cQ	1- 2-30	60¼	36¼	53⅞	35¼	47	24¼
1⅞	1	1,800	1⅞	1⅝	1⅝	Pierce Oil Corp.		$29,622,831	$25	.....	.....	1⅛	½	5¼	½	3⅜	1
4⅞	2¼	21,700	4⅞	4¾	4⅞	Pierce Petroleum	(sh)	2,500,000	N.P.	.....	.....	5½	2½	7	3½	5⅞	½
52¼	45	3,000	46	45⅞	46	Prairie Oil & Gas		$61,720,125	$25	50cQ*	12-31-29	55½	45⅝	68	46	65⅝	40½
60	54¼	2,500	56¾	55	56⅝	Prairie Pipe Line		$101,250,000	$25	75cQ†	12-31-29	190	130¾	280	172	65	45
10⅞	6½	7,500	10⅞	8½	9⅛	Producers & Refiners		$37,438,950	$50	.....	9-15-23	33⅞	16¾	29⅞	16	25⅞	4
38	31	40	38	36	38	Producers & Refiners pfd. ‖		$2,845,350	$50	.....	5- 1-25	50	36⅞	49⅝	41	46¾	25½
24½	21⅛	28,000	24½	23½	24	Pure Oil		$75,959,250	$25	37½cQ	12- 2-29	33½	25	31⅝	19	30¾	20
28	22¼	17,800	28	25¾	26⅜	Richfield Oil		$47,964,650	$25	50cQ	11-15-29	28⅝	25⅜	56	23	49⅝	20
23½	16½	28,800	23½	21	22⅞	Rio Grande Oil	(sh)	1,200,000	N.P.	$2.00A	7-25-29	..	..	37½	32	42½	15
54⅜	49¼	6,300	51⅜	50½	50⅞	Royal Dutch, N. Y.	(sh)	611,303	$1.873	.....	9-13-29	54½	44¼	64	44⅝	64	43⅛
47	42¾	100	42¾	42¾	42¾	Shell Transport & Trading Co. ‖		£19.654,274	£1	$1.45	7-23-29	48⅝	40½	47⅞	41⅜	57½	40⅝
23⅝	21	8,800	23	21⅞	22⅞	Shell Union Oil	(sh)	13,000,000	N.P.	35cQ	12-31-29	31¾	24⅝	39¼	23¼	31¾	19
28¼	22⅞	2,900	27⅛	25½	26½	Simms Petroleum		$8,060,380	$10	40cQ	12-14-29	25⅜	14¼	27¼	18⅛	40⅛	15
26¼	21⅝	58,500	26¼	25	26⅛	Sinclair Consolidated	(sh)	5,500,000	N.P.	50cQ	1-15-30	22⅜	15	46¾	17⅜	45	21
111	109	100	110¼	110¼	110¼	Sinclair Consolidated pfd.		$16,025,250	$100	$2Q	11-15-29	104½	97	110	102½	111	103
32¼	28⅞	5,400	32¼	30⅝	31⅝	Skelly Oil		$27,237,750	$25	50cQ	12-16-29	37⅜	24½	42⅝	25	40½	28
63¾	55½	16,000	63¾	61	61¾	Standard Oil of California	(sh)	12,594,098	N.P.	62½cQ	12-16-19	60¾	50⅜	80	53	81⅞	51½
66⅞	58	81,500	64¾	62⅝	64	Standard Oil of New Jersey		$620,079,800	$25	25cQ*	12-16-29	41⅜	35⅛	59⅜	37¾	83	48
33⅞	31¼	21,100	33⅜	32½	33⅛	Standard Oil of New York		$434,094,575	$25	40cQ	12-16-29	34⅛	29¾	44¼	28¾	48⅛	31¾
59¾	53	100	56	56	56	Sun Oil	(sh)	1,297,627	N.P.	25cQ	12-16-29	34⅞	30	77	31½	86⅜	55
7⅝	5¼	13,600	7⅝	6¾	7¾	Superior Oil Corp.	(sh)	2,324,938	N.P.	.....	12-20-20	..	..	..	..	24	5¼
56¼	50⅞	20,300	55	53	54⅞	The Texas Corporation		$211,076,650	$25	75cQ	1- 1-30	58	45	74¾	50	71⅞	50
11¼	9	17,100	11¼	9½	11⅛	Texas Pacific Coal & Oil Co.		$8,380,340	$10	2½% A‡	12-31-29	18⅞	12	26⅝	12⅛	23⅞	9½
23	19½	200	23	22	23	Tide Water Oil	(sh)	2,191,759	N.P.	20cQ	12-31-29	29⅛	19	41½	19⅝	40	14
90	86⅛	100	86⅛	86⅛	86⅛	Tide Water 5½% pfd.		$20,705,200	$100	$1.25Q	11-15-29	90⅛	85	100⅛	86	97½	85⅛
14⅛	10¾	15,900	14⅛	13⅛	14	Tide Water Associated	(sh)	4,796,158	N.P.	30cS	2-15-30	19⅛	15¾	25	14¾	23½	10
84	78	100	80¾	80¾	80¾	Tide Water Associated pfd.		$72,844,300	...	$1.50Q	2- 2-30	..	..	..	..	90⅞	74⅛
10¼	7¾	16,100	8⅝	8	8½	Transcontinental Oil	(sh)	3,742,029	N.P.	.....	.....	10⅜	3¾	14¾	7¼	15¼	5⅛
46¼	41⅛	3,100	44¾	43¼	44⅜	Union Oil of California		$94,798,100	$25	50cQ	11- 9-29	56½	39⅝	58	42⅜	57	42⅛
36½	33	400	36⅜	35⅝	35⅝	Union Tank Car		$31,061,200	$100	$1.25Q	12- 2-29	127½	94	128⅛	110	163¾	121⅞
20⅞	16⅝	1,000	17⅞	17⅜	17⅞	Warner-Quinlan	(sh)	356,000	N.P.	50cQ	1- 2-30	34½	24½	44⅞	26	42⅞	15
28¼	26	600	28¼	27⅜	28¼	White Eagle Oil & Refining	(sh)	490,000	N.P.	50cQ	1-20-30	27½	20	38	20⅛	38	25
16¼	11½	1,300	16¼	15	16¼	Wilcox Oil & Gas	(sh)	2,400,000	N.P.	.....	5-10-28	..	..	..	..	29¾	12⅞

*Plus extra dividend of 25 cents. †Plus extra dividend of 50 cents. ‡Payable in stock. §Stocks not sold since January 1, 1930. ‖ Bid and ask. x Ex-dividend.
In comparing highs and lows for the several years in the three tables it will be necessary to take into consideration cases where there have been splits in the stock.

where the Texas Corp. has not yet so well equipped its plant with cracking facilities, the percentages were 48.3 per cent for 1929, compared with 43.8 per cent for 1928.

The past year marked in the refinery department a period of heavy construction which will continue in 1930. Additional refineries were completed and put into operation in 1929 at Cody, Wyo., in May; at San Antonio and El Paso, Tex., in July, and at Houston, Tex., in August. During the year 24 units of pressure stills, built in 1920, were retired. Nevertheless, with new and improved units in operation the total charge to pressure stills amounted to 39,436,440 bbls., an increase of 15.3 per cent over 1928. Fifteen additional units were under construction at the end of the year.

Gasoline sales by the company during 929 amounted to 30,459,598 bbls., an increase of 12.9 per cent over 1928. Lubricating oil sales increased 11.5 per cent. Sales of other products also generally showed satisfactory increases. Texaco products were introduced into California on June 1, 1928, and are now well established on the Pacific Coast, says the report.

The Texas Corp.'s construction program in foreign fields, converting case and other package distribution to bulk distribution, started in 1928, was continued during 1929, the report sets forth. Bulk distributing facilities were completed in the West Indies, Brazil, South Africa, Australia, New Zealand, and the Philippine Islands. Can manufacturing facilities were also installed in the Philippine Islands. In England, the company completed and placed in operation bulk facilities for the distribution of lubricating oils.

The results obtained from the operation of Texaco's own tank car fleet showed a further improvement during 1929. The average number of tank cars in service increased 6 per cent over the previous year, while car loadings increased 12 per cent and total car mileage increased 10.7 per cent. The average miles traveled per car increased in excess of 4 per cent. Tank cars in service at the end of the year totaled 6,841, of which 4,465 were owned and 2,376 leased.

Net revenue to the Texas Corp. during 1929 from all sulphur operations amounted to $3,664,331.

Commenting on the crude oil situation, President R. C. Holmes says: "Combining domestic and foreign production, there has been an actual or potential overproduction condition continuously since the early part of 1923. This condition has become a chronic one. At the end of 1929 there was in storage in the United States over 500,000,000 bbls. of crude oil, with estimates of shutin production running as high as 1,200,000 bbls. daily in the United States and 800,000

(Continued on Page 151)

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1930 High	1930 Low	Week ended March 12 Sales	High	Low	Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1927 High	1927 Low	1928 High	1928 Low	1929 High	1929 Low
¼	⅛	2,100	3/16	⅛	⅛	Amer. Con. Oilfields		$11,018,000	$5	.....	.....	2 7/16	.55	1½	.53	72c	⅛
3¼	1½	500	2	1⅞	2	Amer. Maracaibo	(sh)	700,000	N.P.	.....	.....	7½	2¾	9½	3⅛	8⅝	1⅛
1⅜	1¼	100	1⅜	1¼	1¼	Argo Oil	(sh)	683,971	$10	.....	.....	2¾	1	4½	2¼	5	1⅛
..	..	No sales.				British American§		1,311,321	N.P.	25cQ*	1- 2-30	40	20½	55	32¾	62	7⅞
2⅛	¾	700	1⅞	1¾	1⅞	Carib. Syndicate		$131,250	25c	.....	.....	28¼	15½	4½	3⅞	4⅞	1
39⅝	26½	68,800	39½	38½	39½	Cities Service	(sh)	24,290,359	N.P.	30cA†	1- 2-30	58¾	40¼	90⅞	54	68⅛	20
89⅞	88	800	89¼	88½	89¼	Cities Service pfd.	(sh)	1,500,000	N.P.	50cM	1- 2-30	95⅜	87	103½	94½	98¾	84
⅜	¼	1,600	⅜	5/16	5/16	Colombia Syndicate		$2,000,000	$1	.....	.....	3⅞	1⅛	3¼	.76	2	½
5⅞	4⅛	100	4⅛	4⅛	4⅛	Cons. Royalty		$5,000,000	$10	15cQ	10-25-29	9¾	6¾	8⅞	6¼	11⅛	2½
6⅝	5⅝	1,900	6⅛	6	6⅛	Creole Petroleum	(sh)	5,977,873	N.P.	.....	.....	14⅞	9½	17½	9½	11¾	5⅝
1	¼	100	1	1	1	Crown Central	(sh)	578,000	N.P.	.....	.....	3	.50	3¼	.76	2½	¼
8¾	7¼	700	8⅛	8	8⅛	Darby Petroleum	(sh)	1,019,392	N.P.	25cQ	1-15-30	12	4	33½	3¼	26	6½
5⅜	4½	100	5	5	5	Derby Oil & Refining	(sh)	500,000	N.P.	.....	.....	2½	74	2¼	1	11	2
..	..	No sales.				Derby Oil & Refining pfd.§		48,500	N.P.	.....	.....	16¾	4	21⅛	7½	44	20¾
144	131¼	3,300	142	133	142	Gulf Oil Corp.	(sh)	4,504,921	$25	37½cQ	1- 1-30	118	86¼	165	101⅛	209	115
1½	¾	1,200	⅞	¾	⅞	Intercontinental Pet.		$5,682,000	$5	.....	.....	2½	.80	3⅜	1	2⅞	⅜
2½	1⅞	300	2¼	2¼	2¼	Kirby Petroleum	(sh)	750,000	N.P.	.....	.....	2¼	1⅛	3	1¼	3⅝	1¼
2⅜	1⅛	700	2⅜	2¼	2⅜	Leonard Oil & Dev.		$50,000,000	$25	.....	.....	10⅞	5⅛	9⅜	5⅛	6⅛	1
22	18⅝	500	21	20¼	21	Lion Oil & Refining	(sh)	250,000	N.P.	50cQ	1-31-30	27½	20	43⅞	20	38⅞	18
39⅞	34⅛	100	38½	38½	38½	Lone Star Gas	(sh)	5,000,000	N.P.	20cQ	12-31-29	59⅜	37	69⅛	48½	67⅞	28
⅜	¼	1,200	⅜	5/16	5/16	Magdalena Syndicate	(sh)	850,000	$1	.....	.....	2⅞	.80	1⅞	.50	1¼	¼
15	15	100	15	15	15	Margay Oil§		160,000	N.P.	50cQ	1-10-30	52	12	48½	32	38½	14
3½	2	200	2⅞	2⅝	2⅞	Mexico-Ohio Oil		.....	...	.....	.....	12⅛	5	8	2¾	6⅜	2½
⅝	½	600	⅝	½	⅝	Mountain & Gulf		$4,000,000	$1	2cQ	1-15-30	1½	1	1¾	.76	1½	¼
9⅜	8	1,000	9⅜	9	9	Mountain Producers		$1,682,182	$10	40cQ	1- 2-30	29¼	22⅜	28⅞	19½	22⅞	7
2⅞	2½	700	2½	2½	2½	New Bradford Oil		$1,095,291	$5	12½cQ	1-15-30	5⅞	4⅝	5⅝	4¼	5	2¼
7¼	3½	300	6½	6¼	6½	New Mex. & Arizona		$1,000,000	$1	.....	.....	16	9¼	11⅞	7⅛	9⅜	2¼
8½	6⅞	700	7⅞	7⅞	7⅞	North Central Texas	(sh)	400,000	N.P.	15cQ	12- 2-29	12¾	9½	14¼	8½	18½	6⅛
2¼	1	4,600	2	1⅝	2	Pandem	(sh)	489,875	N.P.	.....	.....	9⅜	3¼	6	2⅛	3½	⅛
4	1⅞	300	2⅛	2⅛	2⅛	Pantapec Oil	(sh)	1,506,600	N.P.	.....	.....	12⅛	7	15⅝	8½	10¼	1⅞
..	..	No sales.				Pennok Oil§		150,000	N.P.	.. ...	.....	13½	5⅛	7¾	4⅞	7¾	4⅜
10	9	200	9	9	9	Red Bank Oil	(sh)	250,000	N.P.	.....	.....	24⅜	7	18	4⅞	16	9⅝
3	2⅛	700	2½	2½	2½	Reiter-Foster	(sh)	388,584	N.P.	10cQ	12- 2-29	15½	3½	12⅞	4⅛	8½	1⅛
4½	3⅝	700	4½	4¼	4⅜	Ryan Consolidated	(sh)	500,000	N.P.	.....	.....	7	4½	12	4⅛	11	3
2⅜	2	400	2⅛	2	2⅛	Salt Creek Consolidated	(sh)	1,286,300	$10	10cQ	1- 2-30	8	5¼	7¼	5½	5⅜	1⅞
12⅜	10	400	11½	11¼	11¼	Salt Creek Producers	(sh)	1,496,859	$10	50cQ	2- 1-30	35½	27¼	35	23⅛	25⅞	9
⅞	⅞	100	⅞	⅞	⅞	Savoy Oil§		$750,000	$5	.....	.....	7	1¼	3½	1	2½	5/16
19½	16	900	17	16¼	16¼	Transcontinental pfd.		.....	...	.....	.....	..	..	..	..	..	..
4¼	2¼	3,800	3¾	3¼	3⅝	Venezuelan Petroleum	(sh)	755,090	$5	5cQ	11-15-29	7⅜	4¼	9⅛	4¾	6½	1⅜
3	2⅛	100	2⅛	2⅛	2⅛	Woodley Petroleum		$500,000	$1	.....	.....	7	4⅜	8¼	4⅞	9½	2
1⅞	½	100	⅞	⅞	⅞	Y Oil & Gas (new)§		100,000	N.P.	.....	.....	6	1¾	8⅜	2⅛	2⅞	¼

*Including one-half per cent monthly in stock. x Ex-dividend. †Payable monthly and a monthly stock dividend of one-half per cent. ‡Cents per share.
§Stocks have not sold since January 1, 1930.

STANDARD OIL STOCKS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1930 High	1930 Low	Week ended March 12 Sales	High	Low	Close	Stocks—	Outstanding capital	Par value	Div. rate	Last paid	1927 High	1927 Low	1928 High	1928 Low	1929 High	1929 Low
17⅝	15	500	16⅛	15	16⅛	Anglo-American Oil (nv)	£4,192,635	£1	.36 2/16	11-27-29	21⅝	17⅞	22⅜	14⅞	17	11
1	¾	100	¾	¾	¾	Atlantic Lobos	.....	...	.....	.....	..	..	..	..	..	..
25	24¾	100	25	24¾	24¾	Borne Scrymser§	$1,000,000	$25	$1S.A.	10-15-29	69	50	56½	44½	46½	25
69	64¾	100	64¾	64¾	64¾	Buckeye Pipe Line	$10,000,000	$50	$1Q	12-14-29	60	45	76	53	74¼	55
166½	155	100	160	160	160	Chesebrough Mfg.	$3,000,000	$25	$1Q*	12-30-29	126	76½	161	117	210	130
15⅞	12⅛	500	14⅝	14⅝	14⅝	Continental Oil	$36,057,840	$10	.....	12-15-27	22⅜	16¼	23	16	29	10
53	43	100	47	47	47	Cumberland Pipe Line	$1,500,000	$50	$1Q	12-15-29	137	89	114	67	75¾	40
54¾	50	100	50	50	50	Eureka Pipe Line§	$5,000,000	$100	$1Q	11- 1-29	68½	47	88	64⅛	70½	42
5	3½	100	3½	3½	3½	Galena Signal Oil ctfs of dep.	$16,000,000	$100	.....	.....	13½	3½	13	4¼	6½	3
97	78	800	97½	93	96	Humble Oil & Refining	$74,103,300	$25	50cQ	1- 1-30	68½	54	114¾	59¼	128	74⅛
311	307	50	310¼	310¼	310¼	Illinois Pipe Line	$20,000,000	$100	$10S.A.	12-16-29	182	123⅜	290½	176½	340½	260
27⅜	22⅛	3,200	25	23½	24⅛	Imperial Oil Co., Ltd.	26,421,768	N.P.	12½cQ	12- 2-29	64¾	37¾	104	56¾	41	22
41	38⅝	100	39½	39½	39½	Indiana Pipe Line	$3,000,000	$10	50cQ‡	2-15-30	94½	61	91⅞	74⅜	41⅞	26
21⅞	17⅞	7,300	20½	19¼	20	International Pet.	14,247,088	N.P.	12½cQ	12-16-29	29	28¼	55	35	30⅜	15
22⅜	19⅞	500	20½	20	20	National Transit	$6,362,500	$12.50	25cQ‡	12-16-29	24	13½	32⅜	19⅜	25⅛	10½
18¼	17⅝	200	17⅝	17⅝	17⅝	New York Transit§	$1,000,000	$10	40cQ§	1-15-30	44½	31¼	75	38½	17½	10
54	47⅜	100	47¾	47¾	47¾	Northern Pipe Line	$2,000,000	$50	$2S.A.	1- 2-30	100	70	69	56½	63	41
71¼	66⅛	1,300	69	68¾	69	Ohio Oil	$60,000,000	$25	50cQ‡	12-14-29	67⅞	52	84	58½	79⅞	64⅛
22½	20	300	20½	20¼	20½	Penn Mex. Fuel	$10,000,000	$25	50cQ	12-14-29	39	12	84	28	44½	20
33	26¼	200	26½	26¼	26¼	Solar Refining	$4,000,000	$25	$1.25S.A.	12-20-29	..	..	..	..	50	29
16¾	13	300	15	14	15	Southern Pipe Line	$1,000,000	$10	50cQ	.....	27¼	15½	19	15	22½	13
44	37½	5,100	44	40¼	43⅝	South Penn Oil (new)	$30,000,000	$25	50cQ	12-30-29	41½	35	71⅞	36¾	60¼	35⅛
64	59	100	63	62	63	Southwest Pa. Pipe Lines	$1,750,000	$50	$1Q	10- 1-29	83	55½	102	70	70	60
54⅝	49⅞	13,200	52⅞	51¾	52⅝	Standard Oil of Indiana	$348,175,069	$25	62½cQ‡	12-16-29	81½	64⅝	95⅞	70⅞	63	45
30	27⅛	900	29	28⅜	29	Standard Oil of Kansas	$8,000,000	$25	50cQ	12-16-29	20⅞	14⅝	37¾	15	33¾	18
37⅛	33¼	2,500	35½	35	35½	Standard Oil of Kentucky	$25,654,516	$10	40cQ	12-16-29	130	111½	179¾	122¼	46⅞	29
48⅛	44⅛	100	47	47	47	Standard Oil of Nebraska	$4,649,225	$25	62½cQ‡	12-20-29	49½	40	54⅞	39⅞	50¼	40
88⅜	81	200	86	86	86	Standard Oil of Ohio	$14,000,000	$25	62½cQ	1- 2-30	87½	72	134	71	129	60
10	10	100	10	10	10	Swan-Finch Co.	$861,466	$25	.....	12- 2-29	21	14½	23½	16	18	10
96⅞	88⅛	3,900	92⅞	90½	92½	Vacuum Oil Co.	$126,180,350	$25	$1Q	12-20-29	..	..	111	72	133¾	75

Note—High and low on all stocks selling this week are for 1930.
*Plus 50 cents extra. †Stocks not sold since January 1, 1930. ‡Plus 25 cents extra. §Plus 10 cents extra. x Ex-dividend.

CONSERVATION LAW OF CALIFORNIA UPHELD

(Continued from Page 37)

writers we cannot be confined by the limits placed upon the power by the earlier decisions of our courts. We are no longer a primitive people. In the early days our people lived in small communities or in thinly settled agricultural sections and the rights of each citizen were fairly well known to all others, and the line marking the place where the rights of one ceased and another commenced was generally known. Now we are living in, or adjacent to, large cities and centers of population and it is much more difficult to determine just where one man's rights end and others commence. This changing condition has made it necessary for the law-making bodies and the courts passing upon such rights to extend greatly the domain of police power. Private property, therefore, must give way to the general public good. The power is no longer limited to public peace, safety, morals and health, but is extended to cover the convenience and general welfare of the people."

Gas Conservation Law

The gas conservation law, which has been in the state courts for almost a year, is an amendment to the existing water law under which the State Oil and Gas Department functions. It was enacted by the State Legislature as Senate Bill No. 560, introduced by Senator Lyon on January 17, 1929. It is designed to prevent the waste of natural gas and specifically states that the unreasonable waste of natural gas by the act, omission, sufferance or insistence of the lessor, lessee or operator of any land containing oil or gas or both whether before or after the removal of such natural gas, is declared to be opposed to the public interest and is prohibited and declared to be unlawful. The law also holds that the blowing, release or escape of natural gas into the air is prima facie evidence of unreasonable waste.

One of the most interesting features of the gas law is that it sanctions mutual co-operative agreements between operators to prevent waste and makes all agreements binding and enforceable by action in specific performance. This section holds that: "Whenever the State Oil and Gas Supervisor finds that it is in the interests of the protection of oil or gas from unreasonable waste it is lawful for the lessor, lessee, operator or other persons, firms and corporations owning or controlling royalties or other interests in the separate properties of the same producing or prospective oil or gas field to enter into agreements with the approval of the State Oil and Gas Supervisor for the purpose of bringing about the co-operative development and operation of all or a part or parts of such field for the purpose of bringing about the development of operation of all or a part of any field as a unit or for the purpose of fixing the time, location and manner of drilling and operating of wells for the production of oil or gas, or providing for the return of natural gas into the subsurface of the earth for the purpose of storage or the repressuring of an oil or gas field."

The gas law is designed to prevent excessive waste of natural gas and it specifically authorizes the State Oil and Gas Supervisor to eliminate any unreasonable waste of natural gas by force if necessary. It holds that "upon complaint being made to the director of nautral resources by any person operating in any oil field that there is occurring or threatened an unreasonable waste of gas in any field or fields and a petition is filed with said director requesting that a hearing be held to consider whether such waste is occurring or threatened, and it appearing to the director of natural resources that there is probable cause for such complaint, he shall order the State Oil and Gas Supervisor to hold such a hearing and to fix a time and place therefor; such a hearing may also be ordered by the said director on the application of the State Oil and Gas Supervisor. Upon the conclusion of said hearing the State Oil and Gas Supervisor shall determine whether or not there is an unreasonable waste of gas in said fields, in existence or threatened, and shall also determine the extent to which the waste of gas therein occurring or threatened is unreasonable. If it shall appear that gas is being produced from any oil well or wells in quantities exceeding a reasonable proportion to the amount of oil produced from the same well or wells, even though it is shown that such excess gas is being used in the generation of light, heat, power or other industrial purpose and that there is sufficient other gas available for such uses from other wells in the same or other fields in which the gas produced is not in excess of the amount which bears a reasonable proportion to the amount of oil produced from such other wells and that there are adequate gas-pipe-line connections between such other wells and the place of utilization of such gas, the State Oil and Gas Supervisor shall hold that such excess production of gas is unreasonable waste thereof if such holding will not cause an unreasonable waste of gas in any other field. If the waste of gas be found unreasonable an order shall be made directing that such unreasonable waste of gas shall be discontinued or refrained from to the extent stated in said order. The sale or delivery of gas to another by a lessor, lessee or operator shall be no defense, excuse or reason for any lessor, lessee or operator disobeying an order of the State Oil and Gas Supervisor directing the discontinuance or curtailment of the production of the well or wells from which said gas is being produced where such gas is being unreasonably wasted by such buyer or by the person to whom deliveries are being made. A copy of said order must be posted in a conspicuous place upon the property affected thereby, and said order shall become final five days after such posting unless appealed from as provided."

DEEP SAND DEVELOPMENT AT BARBERS HILL FIELD

(Continued from Page 40)

hang of the salt body cannot be determined by these methods.

Stratigraphy

The columnar section shows the stratigraphy as found in a type producing flank well close to the dome.

The sediments penetrated by the drill are successively of Pleistocene, Pliocene, Miocene, Oligocene and Eocene age. The Pleistocene, Pliocene and Miocene have been described by Bevier and Applin, Ellisor and Kniker. The Oligocene and the Jackson formation of Eocene age are generally similar in character to descriptions of these formations on nearby domes by the last three writers. The contact between the Oligocene and Jackson is not yet fully determined by paleontological evidence, but the two probable limiting positions are shown in the columnar section in Figure IX.

It is of special interest to note the various incursions of lignitic shale into the basal Oligocene which allows this to be easily mistaken for the Jackson formation. Assuming the contact between the Oligocene and Jackson formations to be approximately 400 feet above the Textularia Hockleyensis zone in Yount Lee Oil Co.'s No. 4 Chambers County Agricultural Association, the total thickness of the Oligocene formation would be about 2,100 feet. This amount is exceptionally great for the Oligocene, when compared with its thickness found on either nearby domes, or on those slightly farther inland from the coast, which are the ones in which the Oligocene has already been explored. This formation shows a large number of sand bodies, alternating with shales and gumbos on all flanks of the dome.

Structure of Surrounding Sediments

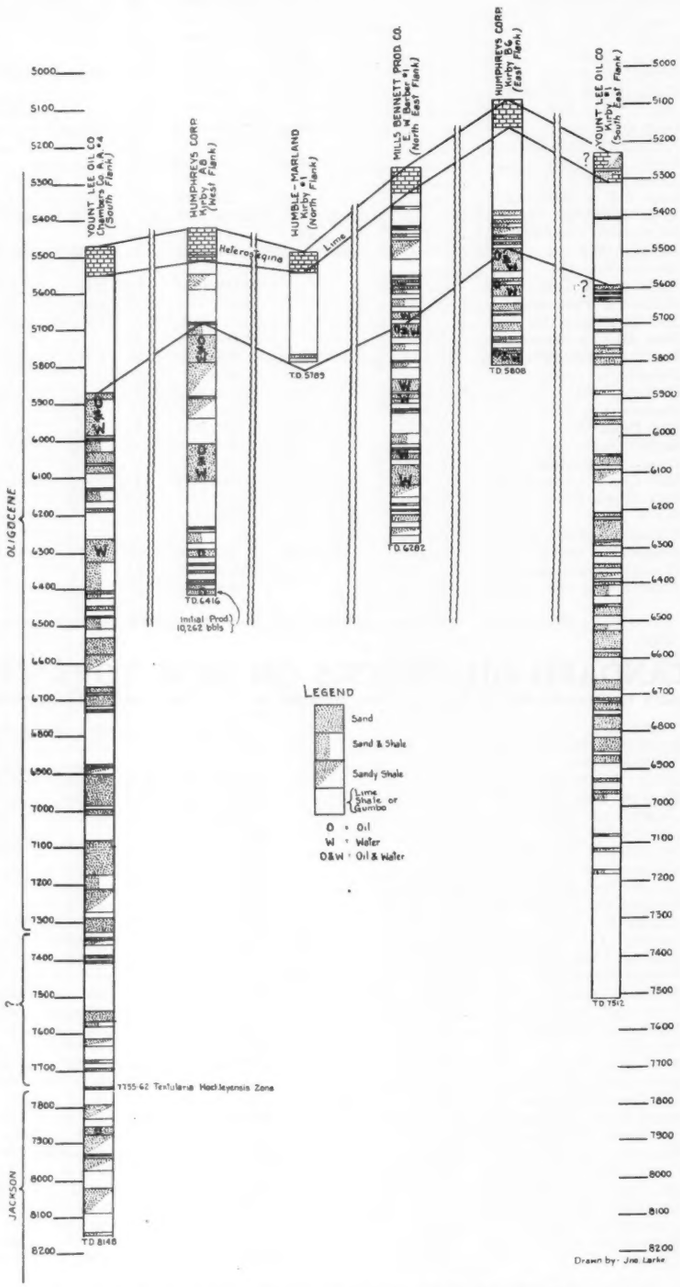
The surveys of at least 25 wells have proved that the average deep well deviates considerably from the vertical. Accordingly sections based upon correlations between wells on known horizons, such as the Heterostegina lime, would be highly inaccurate in regard to dip when the deep wells are only a few hundred feet apart. It is not possible without additional surveys to know the exact dip of the horizons. Dips are found in cores of shale and sandy shales, varying from an average of about 25 degrees in the Oligocene on the northeast flank to about 45 degrees in the same formation on the northwest flank. It is questionable whether these dips represent actual dip of the horizons, but they probably approximate them. It is not definitely known whether much faulting exists in the sediments on the flanks of the dome, although considerable local faulting appears to be present on the southwest flank in the vicinity of Mills Bennett Production Co.'s No. 8 Barrow. Many supposed local faults are easily explained by crooked holes.

Drilling Methods

Drilling practice carried on in this field compares favorably with the methods used in the principal deep rotary fields of the Mid-Continent and California. Special methods have been developed to take care of the particular problems that naturally occur around an intrusion of salt and porous caprock surrounded by unconsolidated sands, shales and occasional hard beds of calcareous sandstone. Wells in the 5,100-foot sand are completed in an average time of 50 to 60 days and usually require only one string of casing besides the surface string. The producing string is cemented in gumbo directly above the oil sand, and liner and screen of proper mesh are then set in the sand and sealed off 100 feet or so above the bottom of the casing.

Where producing is expected sand sections are thoroughly cored. Core barrels which drill the full size of the hole and take cores up to 20 feet in length save considerable time. Surveys to determine deviation from vertical have been run in about 30 per cent of the wells, and surveys which show direction as well as amount of deviation have been made in about 10 per cent of the wells. When a hole is found to be very crooked it can usually be corrected by redrilling a part of it. Surveys greatly aid the geologist in considering the problems of new locations and proper drainage of the sand body.

Determinations of formations and their zones are made principally by paleontological examination. However, the Heter-



Section of deep sands on flanks of Barbers Hill salt dome, Chambers County, Texas. Section runs clockwise around periphery of dome.

ostegina lime of the Oligocene formation, consisting of 70 feet of hard fossiliferous limestone, and located about 150 to 200 feet above the 5,100-foot pay zone, provides the operator with an accurate drilling marker. Subdivision of the sand bodies into their individual beds is aided by comparison of washed samples of the sands, which usually possess noticeably different characteristics which enable close correlations for short distances. Quantitative determinations of salt and oil content, combined with the observed gaseous odor, help in deciding whether to set screen in a particular sand. Experience has shown that a sand which will produce oil cannot usually be distinguished by any one of the tests mentioned but rather by a combination of all three.

Oil and Gas

The total production for the year 1929 was 4,487,000 bbls. Nearly all of this was produced from the Oligocene sands in the three separate areas on the south, southeast and east flanks previously mentioned. These three areas are all highly productive in the 5,100-foot zone, although the most northerly of these three areas has been developed more intensively and has produced more oil than either of the others. The flank acreage between these three areas is being gradually drilled up, following usual Gulf Coast practice. The combined total length of these three productive areas measure 9,500 feet and is considered proved for the 5,100-foot zone. The width of the producing zone varies from one location on the south to 400 feet in width on the southeast and east flanks. It has not yet been defined along the dome in either direction by dry holes and in only a few instances by salt wells on the side toward the dome. Only one flank well on the entire dome has reached the salt as low as 4,000 feet. Small wells or dry holes have been obtained on the side away from the dome, defining the edge of production of the zone in that direction.

The initial daily production ranges from 600 to 4,700 bbls., with the average well making initially from 1,000 to 2,000 bbls. The flowing life of these wells varies greatly according to spacing, drainage, manner of completion and method of flowing. The average well, however, will return the investment cost during its flowing period. Several of the best wells have produced to date well above 200,000 bbls each during their flowing life, with occasional wells considerably more. Wells settle to pumpers that make from 75 to 300 bbls. The life of these pumpers cannot yet be accurately estimated. The gravity of the oil ranges from 26 to 28 Baume.

The Humphreys Corp.'s No. 8-A Kirby, on the northwest flank, has produced 316,500 bbls. of oil in the past 39 days from a sand several hundred feet lower in the Oligocene section than the sand which is producing on the opposite flank. It is still flowing 6,000 bbls. daily at the time this article is written. The production record of the well indicates that this lower sand will be even more prolific than the 5,100-foot zone already developed on the south and east flanks.

Distillation Tests

Distillation tests of oil from the 5,100-foot zone on the east and the 6,400-foot zone on the northwest follow:

Distillation tests by Houston laboratories, January 28, 1930.

Sample of oil from Humphreys Corp.'s No. 1-H Kirby, depth 5,071 feet:

CRUDE TESTS

Gravity	27.3° A.P.I.
Flash	Room Temperature
Viscosity	61 at 100° F. Saybolt Univ.
Water	Trace
Pour test	—0° F.
Color	Dark green
Sulphur	0.18%

TESTS MADE ON GASOLINE

Gravity	54.0° A.P.I.
Color	25
Doctor test	Positive
Initial boiling point	122° F.
Maximum boiling point	434

SUMMARY OF YIELDS

Gasoline	7.7%
Kerosene	5.3%
Gas oil	45.9%
Lubricating oil	25.0%
Fuel oil	15.1%
Loss	1.0%
Total	100.0%

Sample of oil from Humphreys Corp.'s No. 8-A Kirby, depth 6,416 feet:

CRUDE TESTS

Gravity	34.2° A.P.I.
Flash	Room Temperature
Viscosity	42 at 100° F. Saybolt Univ.
Water	Trace
Pour test	—0° F.
Color	Dark green
Sulphur	0.15%

TESTS MADE ON GASOLINE

Gravity	55.3° A.P.I.
Color	25
Doctor test	Negative
Initial boiling point	110° F.
Maximum boiling point	434

SUMMARY OF YIELDS

Gasoline	23.6%
Gas oil	45.5%
Lubricating oil	15.0%
Fuel oil	15.0%
Loss	0.9%
Total	100.0%

This crude in common with most other Gulf Coast crudes is desirable on account of its lubricating stock and the anti-knock quality of its gasoline.

For the past few months Barbers Hill has equalled Spindletop in daily production and at the present time is the leading coastal salt dome in production.

Companies having pipe lines to the field are Liberty, Humble, Sun and Gulf Pipe line companies. The field is within 12 miles of the Houston ship channel which is accessible to tankers of nearly every size. Most of the oil is run by pipe line to nearby refineries in the Texas Gulf Coast, or is shipped by tankers to Gulf, Atlantic or foreign ports. There are 13 refineries within a radius of 60 miles, with a combined capacity of 513,500 bbls. of oil per day.

Future Development

Twenty-six deep wells are now drilling, 23 of which are on proved locations and 3 are wildcats. The development of the north, east and south flanks of the dome should proceed in an orderly manner, as leases on acreage are held by a few owners in large tracts. The east flank, however, is in certain portions divided into small tracts with various owners and a rapid development is probable there when deeper flush sands are discovered.

Formations encountered below the Heterostegina lime in five deep tests on various flanks of the dome are shown.

Yount Lee Oil Co.'s No. 4 Chambers County Agricultural Association, on the south flank, Yount Lee Oil Co.'s No. 1 Kirby, on the southeast flank and Humphreys Corp.'s No. 8-A Kirby, on the northwest flank show a series of alternating thick sands and shales in the Oligocene, extending 1,400 feet to 1,500 feet below the 5,100-foot pay zone. One of these lower sands mentioned has already proved to be prolific, and it is probable that several of the other sands will be productive when found structurally high, close to the dome. The Jackson formation, which is already highly productive on several other salt domes, can be reached by deep wells. The withdrawal of oil from Barbers Hill will be aided in exploratory wells to the deep sands by torsion balance surveys. The development of the directional survey of wells permitting the close determination of the position of the bottom of each hole should reduce the number of dry holes at the dome and allow a minimum number of wells per acre to effectively drain the pay sands. These two items should lessen considerably the cost of removal of the oil. The drilling depth, the large size of the wells, the many sand bodies with seeming regularity, the size of tracts and the accessibility by water to a world market point to Barbers Hill as being a consistent large producer for many years.

EQUIPMENT SHOW GETS ENCOURAGING START

(Continued from Page 41)

ress with its 125,000 attendants last October, representatives from 22 foreign nations and having represented well over 1,000 American companies having to do directly with the oil business.

"So, in offering you my congratulations on the wonderful endeavor put forward to hold the California exposition, by the same token I must extend to you an invitation to come to Tulsa in October and attend the International Petroleum Exposition, become a part of it, and extend your activities not only into the Mid-Continent Field but, through the contacts you make here, your voice will be heard all over the world in all of the producing areas where petroleum activities form a major business."

EQUIP AIRPLANES TO MAKE GASOLINE TESTS

(Continued from Page 137)

uncertainties still existing as a result of laboratory tests rather than actual tests.

The Empire Oil & Refining Co. has given considerable attention to the problem in the past and its plane has been used in experimental work almost exclusively. The arrangement of the instruments in the Phillips company's plane, as shown in the accompanying picture, may be taken as typical of all of the planes entered thus far in the work.

Wherever space has permitted, provision has been made for taking duplicate readings using both a thermocouple and a resistance thermometer for the purpose. An additional gasoline tank has also been installed in the fuselage of the ship, so that pressure as well as gravity feed systems may be studied in detail.

The accompanying photograph shows the installation of the switch panel and recording instruments in the cabin of the plane. The wall type millivoltmeter allows the pilot to obtain flight data unassisted, while a potentiometer, operated from beside or behind the pilot's seat, is used when more accurate readings are desired.

The installation of the resistance thermometers and thermocouples was accomplished by removing the fabric from the fuselage. All wiring is therefore enclosed and protected from shorts and breakage. The instruments are so placed that the following temperatures may be determined at any time:

1. Air temperature—right wing.
2. Temperature of vapor space in wing tank.
3. Temperature of gasoline in wing tank.
4. Temperature of vapor space in main tank.
5. Temperature of gasoline in main tank.
6. Temperature of gasoline feed line.
7. Temperature of gasoline in carburetor bowl.
8. Temperature of gasoline in fuel pump.
9. Temperature of gasoline in strainer.
10. Temperature of gasoline in wobble pump.
11. Temperature of air to carburetor intake.
12. Temperature of cylinder heads.
13. Temperature of cylinder head flanges.

Other information such as altitude, air speed, climbing and gliding angles and the like will, of course be obtained from the plane's regular instruments, and correlated with the above temperatures and any pertinent observations regarding motor operation. A full series of laboratory tests will also be run on the gasoline used.

INSTRUMENT CONTROL AN IMPORTANT FACTOR

(Continued from Page 137)

high, gasoline will pass along to the high stage compressors; if the level becomes too low, gas will be blown into the make tank, which is dangerous. A high-pressure liquid level controller should also be applied on the high pressure accumulator. In this case, too high a level would mean that gasoline would go out into the residue gas lines to the field and be a total loss.

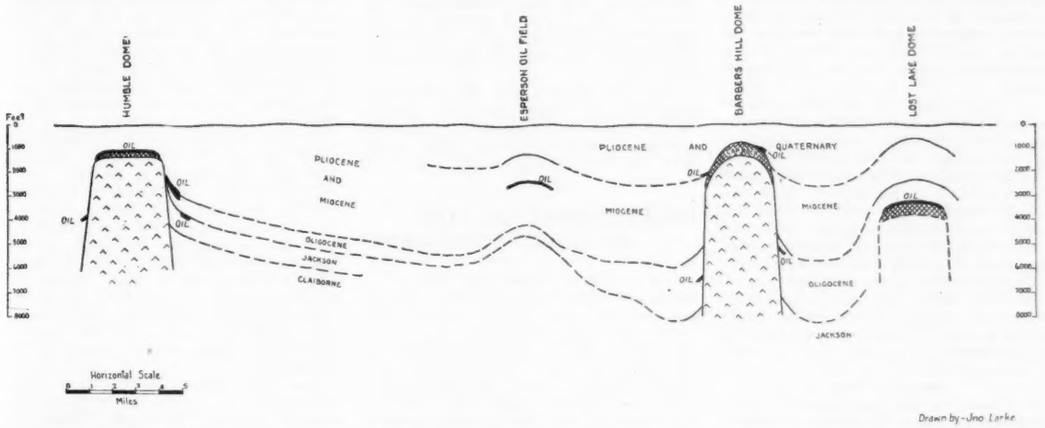
Absorption Towers—In the absorbing tower the cold oil dissolves the gasoline vapors and collects at the bottom of the tower where a level controller should be installed to maintain a seal and to handle the discharge of the charged oil. If the oil level in the absorber becomes too high, its effficiency is impaired. If all the oil were to flow from the tower, gas would follow, creating a very dangerous condition in the system.

The temperature of the oil which collects at the bottom of the absorbing tower is a very important factor, especially during the summer months because the lower the temperature prevailing in the tower, the higher the absorbent power of the oil. A recording thermometer or an industrial thermometer should be used at this point.

Heat Exchangers—The charged oil passes through a heat exchanger and a preheater and enters the stripping or denuding still. Recording or industrial thermometers should be installed on the hot oil outlet of the heat exchanger and on the old oil outlet.

Stripping Stills

The still may be straight steam, straight fire or combination fire and steam. In any case automatic temperature control should be used to insure maximum



NW-SE—Generalized cross section through Humble, Esperson, Barbers Hill and Lost Lake oil fields. Vertical scale exaggerated to approximately five times that of horizontal.

throughput, uniform endpoint and uniform evaporation. If the still is gas-fired, a diaphram valve on the gas line of the burners operated by a controller with its bulbs in the still will maintain the required uniform temperature. The diaphram valve should be by-passed or some other provision made for maintaining a pilot flame at the burners. If it is desired to regulate the steam, the diaphram valve is installed in the steam inlet line. When both live and exhaust steam are used in heating these stills, the use of a Duplex Temperature Controller is recommended. The Duplex Controller regulates the admission of exhaust steam to the still and whenever the exhaust steam is insufficient to maintain the desired temperature, enough live steam is admitted to supply the deficiency. A recording thermometer on the still is, of course, an absolute necessity for checking up plant operation. The oil level in the still should be automatically maintained at a uniform point by a liquid level controller.

Most plant operators feel that the operation of the stripping still cannot be given too much attention, since on the efficiency of this apparatus depends the efficiency of the plant. The value of automatic and continuous control at this point cannot be overemphasized.

Knockout Boxes—The gasoline vapors driven off in the still pass first through a knockout box to knock out any heavy fractions and thus to control the endpoint of the condensate. The knockout box is water cooled (sometimes oil cooled) and for control an air-operated temperature controller should be used together with a recording thermometer. Automatic temperature control of the knockout box is one of the most important applications in the absorption plant.

Cooling Towers—The gasoline vapors leaving the knockout box pass to the cooling tower, where the gasoline is condensed by the cooling effect of water sprays. A recording thermometer with its bulb in the pool under the tower will serve as a guide to the operation of the water pumps. For example a rise in temperature may indicate loss of pump capacity as would occur when clearance rings of centrifugal or the packing rings of duplex pumps wear. The maintenance of the proper temperature is obviously important as too high a temperature permits valuable products to go out with the gas. Too low a temperature simply wastes water and liquefies "wild" constituents which will cause excessive weathering losses later.

Stabilizers—The use of stabilizers in natural gasoline plants has attracted considerable interest. The stabilizer is rectifying column connected to a low temperature kettle or still. The various condensates are expanded into the stabilizer column at various points, the lightest fractions at the top. A refrigerating effect is produced by the expansion and evaporation of the light liquids. Steam coils in the kettle maintain it at a uniform temperature and furnish hot vapors which enter the bottom of the column. A uniform temperature differential is thus established between the top of the column and the bottom. The top is kept at a sufficiently low temperature by the refrigerating action, so that the wild vapors which leave contain no true gasoline. The bottom of the column is kept sufficiently warm by the vapors from the still so that liquids descending in the column are freed of all gaseous constituents.

By keeping all other conditions unaltered, it is possible to vary the quality of the products collected in the kettle simply by changing the kettle temperature. The kettle temperature is the controlling factor of the entire process and the necessity of automatic control at this point is apparent.

An air-operated temperature controller is recommended for this application, where temperature accuracy is so vital to the success of the process. The bulb stem is inserted either in the still or in the vapor line leaving the still, and the diaphragm-motor valve is placed on the steam inlet line of the steam coil. The temperature setting point of the controller is, of course, easily changed at any time. A recording thermometer and a recording pressure gauge should also be connected to the kettle or still.

An air-operated pressure controller is also recommended for regulation of the release of the wild vapors from the top of the column.

The admission of the liquid to the various points in the tower can be automatically regulated. Liquid level controllers are mounted on the accumulator tanks of the precooler condenser, intercooler condenser and aftercooler condenser and maintain a constant level by automatically operating diaphragm-motor valves on the admission line to the column.

One other instrument should be mentioned. The mixing of air with natural gas in the pipe lines introduces an element of danger, as well as a considerable decrease in the gasoline production.

The dangers and losses due to this contamination of gas with air are caused by

(1) the formation of an explosive mixture in the gas lines;

(2) inefficient production of gasoline because of

(a) improper cooling after compression,

(b) imperfect precipitation,

(c) increase volume of mixture to be handled, and

(d) decrease of effective pressure on gasoline vapor;

(3) excessive wear and tear of the compressor equipment and accessory equipment.

Because of these dangerous and troublesome effects, the exclusion of air from pipe lines is essential to safe and economical operation.

But the detection of leaks in vacuum lines by ordinary methods is impossible. Periodical inspection of the lines by throwing them out of service and applying gas or air pressure is an expensive procedure. Occasional tests with a portable Orsat apparatus do not give the continuous information which is the only guide to the true conditions. The one method which meets every requirement is to use an air-recorder which shows the percentage of air in the gas at all times by writing a continuous record on a chart. By this record which is automatically made 10 times every hour of the 24, every day in the year the operating force knows exactly what per cent of air they are handling.

As soon as this per cent of air becomes dangerously high or even high enough to lower efficient compression and absorption, immediate steps can be taken to locate and eliminate the leakage which is responsible. A recorder for this purpose is available.

SPECIFICATIONS FOR GASOLINE DISCUSSED

(Continued from Page 39)

means more than the quick starting of a motor. Ease in starting is important from the consumer angle but acceleration or the ability of a fuel to start a motor during the warming up period is also being stressed. It was pointed out that it is possible to secure quick starting with a low initial fuel and still not have the desired acceleration, a function of the intermediate points in the distillation range.

Pointing to mistakes made by refiners it was stated that in blending for gravity, particularly when cracked gasolines are being used, the low end of the distillation range is often over loaded causing vapor lock in the motor. This was part of the attack on gravity as an essential specification in motor fuels. It was contended that in blending large quantities of natural gasoline for gravity the refiner many times obtained a poor motor fuel while with smaller quantities of natural gasoline of the proper grade he could have secured a product meeting all the necessary specifications for proper performance.

Propane Free

In answer to the question as to what hydrocarbons were desirable in natural gasoline it was said that this was largely dependent on the characteristics of the refinery product and the grade of finished motor fuel required. Most manufacturers now agree that propane, the lightest of the hydrocarbons found in substantial quantities in many natural gasolines are not desirable in motor fuels.

The presence of these highly volatile ends is an important factor in vapor pressure and often contributes to excessive losses in storage and in transportation. It is also related to the vapor lock problem.

In regard to the butane series it was stated that the quantity desirable for blending would vary over rather wide limits. It was pointed out in this connection that tests had shown that the present Grade AA varied in the quantity of butane from 10 to 35 per cent. In the new specifications, the manufacturers propose to give the buyers a much closer check on the butane content in purchases.

The representative of one large export company said that during the past year the quantity of butane had been excessive in many shipments received from Mid-Continent manufacturers. He explained this as being due to the fact that some of the manufacturers were manufacturing special products such as solvents with other fractions obtained in their plant operation and thus had large quantities of butane. From the export end because of its direct relationship to vapor pressure, small quantities of butane are desirable. On the other hand manufacturers stated their investigation had shown that many refiners in domestic grades could economically use natural gasolines with the maximum butane content due to the characteristics of their refinery gasoline.

Messrs. Smith and Kaye and other manufacturers stressed the fact that they were not attempting to establish arbitrary specifications and grades which would work a handicap on the refinery buyers who purchase the bulk of their product. Their efforts, it was stated, were directed to finding out, first, what the refiner wanted and then establishing specifications which would permit the buyers to discriminate in their purchases more than they have been able to in the past.

GEOLOGISTS ARRIVING IN NEW ORLEANS

(Continued from Page 39)

and later a leaseman, meanwhile studying petroleum geology, with the result that he entered the company's geological department. From 1921 to 1925 he was a consulting geologist, leaving this work in the latter year to become a geologist for the Marland Oil Co., then the Texas Pacific Coal & Oil Co. and later the Tidal Oil Co., which organization he still serves. In addition to the American Association of Petroleum Geologists, of which he was secretary-treasurer in 1927 and second vice president in 1928, Mr. Donoghue is a member of the American Institute of Mining and Metallurgical Engineers, the Institution of Petroleum Technologists and the American Association for the Advancement of Science. He is also a member of the Texas State Historical Association, Fort Wort Book Club and the Meadowbrook Golf Club.

Both Mr. Powers and Mr. Donoghue have wide friendships and it is agreed by the supporters of each that with the election of either the association would have an exceptionally capable man at its head.

INDEPENDENT OIL MEN RE-ELECT PRESIDENT

(Continued from Page 138)

by ballots mailed to the election committee, and the count showed that the following had been elected for a term of three years: S. H. Arnold, Alabama Oil Co., Huntsville, Ala.; L. F. Milheim, California Northern Corp., Oakland, Calif.; I. A. Archambault, Pennsylvania Oil Co., Evanston, Ill.; A. L. Lommel, Bartles-Shepard Oil Co., Waterloo, Iowa; F. E. Bergfors, Quincy Oil Co., Quincy, Mass.; W. G. White, the Goyer Co., Greenville, Miss.; J. R. Battenfeld, Battenfeld Grease & Oil Co., Kansas City, Mo.; R. G. Cunningham, Cunningham Oil Co., Miami, Okla.; S. W. Rusk, Rusk Oil Co., Philadelphia, Pa.; E. E. Johnson, Columbia Oil Co., Columbia, Tenn.

At their meeting held Monday evening the board of directors elected officers and filled vacancies on the board of directors. The following were elected for the unexpired term: R. N. Pritchard, Home Oil Co., Ripley, Tenn.; A. E. Bolhm, Bolhm Oil Co., Temple, Tex., and T. A. Telfor, Calumet Refining Co., Chicago, Ill. W. R. McCain, Purity Oil Co., Springfield, Mo., was elected chairman of the board of directors, succeeding C. L. Maguire of the Northland Oil Co., St. Paul, who declined to be considered for the position owing to private business.

TIDE WATER COMPANY TO EXPAND OUTLETS

(Continued from Page 138)

1928 because of higher posted crude prices, and received about $3,600,000 less in 1929 for a comparable volume of manufactured products due to lower prices in its eastern marketing area. It is expected that developments now under way by the producing division of Tide Water Oil Co. will go far toward correcting its unbalanced crude position.

"During 1929 a volume of retail sales business was established in the eastern area which materially reduced the per gallon cost of distribution.

"During the summer, keels were laid for two motor tankers of 13,450 deadweight tons each, with gasoline carrying capacity of 116,000 bbls. each, to be delivered August 31 and September 15, 1930. The company is also having built one 20,000-bbl. Diesel electric motor barge for its coastwise fleet, to be delivered May 1, 1930. These bottoms will materially reduce transportation costs.

"It is now possible to deliver the company's produced and field-purchased Mid-Continent crude to the Bayonne refinery at substantially lower pipe line costs than at any time heretofore. This is due to an extension of the gathering system and trunk line in Oklahoma and the making of a long-term contract last October with a transcontinental trunk line connecting our Oklahoma system with the western terminal of the Tide Water Pipe Co., Ltd., at Stoy, Ill. The benefits of this arrangement should be reflected in the Bayonne refinery earnings during 1930."

HOUSTON PIPE LINE ELECTION

HOUSTON, Tex., Mar. 15.—At the annual meeting of stockholders the new board of the Houston Pipe Line Co. was chosen as follows: W. W. Blocker, E. H. Buckner, Samuel C. Davis, David Hannah, George A. Hill, Jr., A. H. Kennerly, T. M. Kennerly, George Mackubin, Thomas S. Maffitt, McDonald Meachum, L. S. Zimmerman.

The pipe line company board re-elected the following oficers: E. H. Buckner, president; A. H. Kennerly, secretary; L. S. Zimmerman, vice president and treasurer; George A. Hill, Jr., vice president; W. W. Blocker, vice president; Frank W. Kirk, general manager; George B. Pelton, assistant secretary; H. W. Fairbrother, assistant secretary; C. Lee Wood, auditor and assistant treasurer.

Executive committee—E. H. Buckner, chairman, L. S. Zimmerman, George Mackubin and Thomas S. Maffitt.

Houston Oil Co. directors in their meeting re-elected the following officers: E. H. Buckner, president and treasurer; L. S. Zimmerman, vice president; A. W. Standing, general manager; A. H. Kennerly, secretary and auditor; George B. Pelton, assistant secretary; S. D. Richardson, assistant secretary. The executive committee consists of: Thomas S. Maffitt, chairman, David Hannah, L. S. Zimmerman.

The legal department for both companies follows: Judge T. M. Kennerly, general counsel; McDonald Meachum, associate counsel; Kennerly, Williams, Lee, Hill and Sears, general attorneys.

CALIFORNIA GASOLINE STOCKS CONSIDERED THREAT TO EAST

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Mar. 17.—Not only is California becoming a more important competitor in gasoline sales in the East, but Pacific Coast refiners are also cutting in on gallonage of gas oil, fuel oil and kerosene distillate in this area. Shipments of principal California refined products to the East during January and February of this year, with comparison for the comparable weeks in 1929, are as follows:

	Product (barrels)							
	Gasoline		Gas oil		Kero. dist.		Fuel oil	
Week ending—	1930	1929	1930	1929	1930	1929	1930	1929
Jan. 4	83,000	239,000	78,000	.....	95,000	28,000	.....	.....
Jan. 11	447,000	387,000	.....	.....	95,000	.....	.....	.....
Jan. 18	575,000	418,000	120,000	.....	25,000	.....	95,000	.....
Jan. 25	626,000	294,000	130,000	.....	.....	96,000	.....	.....
Feb. 1	398,000	68,000	.....	.....	.....	.....	.....	.....
Feb. 8	379,000	654,000	.....	77,000	30,000	.....	70,000	.....
Feb. 15	612,000	445,000	.....	172,000	.....	.....	.....	.....
Feb. 22	117,000	80,000	.....	.....	.....	80,000	95,000	.....
Mar. 1	105,000	517,000	70,000	96,000	.....	.....	.....	.....
Total	3,342,000	3,102,000	398,000	345,000	245,000	204,000	260,000	.....

Aside from the increase of approximately 10 per cent in gasoline receipts at East Coast ports during the first two months of the year, approximate percentage increases shown by other refined products were as follows: Gas oil, 21 per cent; kerosene distillate, 20 per cent; fuel oil, 260,000 bbls., against none in the comparable months of 1929, and lubricating oil, 11,000 bbls., against none in the comparable period last year.

Might Nullify Benefits

Agitation for a "one-seventh" curtailment in refinery runs has tended to again center market interest in the position of California gasoline with respect to East Coast markets for motor fuel. The curtailment plan advocated by the Federal Oil Conservation Board, as it is being adopted by the industry, will of course take in the California branch of the refining industry. Conceivably, this curtailment plan will bring about marked improvement in the eastern gasoline situation.

California refiners, however, have it in their power to completely nullify the benefits of the one-seventh plan in the East Coast area. Pacific Coast gasoline reserves are out of all proportion to the normal marketing territory of California refiners. This condition has prevailed for some years past, and California motor fuel has been marketed in ever-increasing quantities in the eastern markets, at times penetrating as far inland as Ohio to sell in competition with Group 3. California last year moved 21,347,000 bbls. of gasoline to Gulf Coast and East Coast markets (almost entirely the latter) against 14,958,000 bbls. shipped eastward in 1928 and 11,128,000 bbls. so marketed in 1927. Marketing plans of interests handling the California product in East Coast markets contemplate for 1930, under normal conditions, the movement of at least 25,000,000 bbls. of California gasoline to the Atlantic seaboard, it is believed, with movement limited only by the number of tankers available.

East Coast refiners have, previous to the public suggestion of the Federal Oil Conservation Board, planned curtailment in gasoline production for 1930, this move being forced by the continued growth in California receipts and the rapidly increasing shipments of South American gasoline into their territories. These "outside" gasolines have not only absorbed the normal increase in consumption in this area, but have likewise cut heavily into the established gallonage of many eastern oil concerns.

East Expects Cut In Shipments

Leading eastern oil men, in commenting on the plans for curtailment in refinery throughput at refineries, have made it clear that full approval of the plan must necessarily involve a corresponding cut in imports of crude petroleum and refined products, in justice to the American refiners. The situation with respect to shipments of California gasoline eastward would appear to demand the same consideration.

At present, the only major company operating in the East deriving its gasoline supplies solely from Pacific Coast refineries is Richfield Oil Corp. of New York, eastern marketing subsidiary of the parent Richfield Oil Co. of California. The eastern unit, now just a little more than a year old, has conducted an aggressive marketing campaign to gain a strong foothold in eastern markets, and has since rapidly spread its operations until now it is definitely a major factor in gasoline distribution in this area. Other large companies, including most of the major units in the eastern field (excepting Sinclair) are drawing California gasoline from Pacific Coast producing and refining subsidiaries, to supplement the motor fuel production of their East Coast and Mid-Continent refineries.

California refiners, as previously stated, are carrying burdensome excess stocks of gasoline. How burdensome these holdings are may best be judged by some of the extremely low prices which have been quoted f.o.b. California refineries since the first of the year. In the face of abnormal depression in eastern refined oil markets, California refiners have nevertheless been shipping gasoline and other products eastward in quantities materially in excess of those of previous years. This growth has been accomplished not only in the face of depressed markets in this area, but notwithstanding exceptionally high tanker charter rates and a shortage of bottoms as well. Any marked improvement in eastern gasoline markets, it is felt, would bring on a flood of California gasoline, unless some sort of "gentlemen's agreement" is arrived at to prevent such a recurrence.

Just as California (and in the case of crude, Texas as well) constitutes the "fly in the ointment" in the crude oil division of the business, so do California refinery stocks of gasoline constitute the principal menace to the success of the one-seventh curtailment plan, in so far as the eastern refining trade is concerned.

Surplus holdings of gasoline in California, it is estimated, are sufficient to more than make up for the reduced output over a limited period of motor fuel at East Coast plants under the provisions of the one-seventh curtailment plan, as tentatively outlined, and while the plan is aimed at the stabilization of the entire industry through the reduction of stored holdings, East Coast refiners are naturally in no mood to see their home markets taken away from them by a flood of motor fuel from refineries 3,000 miles away, at a time when they are reducing their own output in an effort to bring about the restoration of normalcy to their own home markets.

Definite decision to cut throughput and gasoline output at East Coast plants therefore, would seem to require a definite understanding regarding the extent of unloading of California surplus stocks in eastern markets during the period of curtailment.

PERUVIAN OIL MONOPOLY

The Peruvian Senate has passed a bill creating a monopoly on petroleum and its derivatives, a communication to the Department of Commerce from Commercial Attache Smith states.

OKLAHOMA GASOLINE MARKET IMPROVES

(Continued from Page 36)

Whether this attitude will result in the immediate dropping of the plan by those who adopted it is yet to be determined. If it fails, regardless of the improvement in the crude oil situation, it will still leave the refining industry with the burden of large gasoline inventories which will at least slow-up any improvement in the refinery market.

Demand Improves

Aside from the improvement in the statistical situation as explained the increased domestic demand for gasoline has aided the market over the past few days. Some of this buying was speculative coming from brokers who are anticipating higher prices before the end of the month. Many sales, however, are being made direct to jobbers. Weather conditions on the whole have been exceptionally favorable for gasoline consumption. As in February many jobbers are finding their March demand much better than expected and they are buying more from the refiners both on contracts and the spot market.

The increased consumption is also reflected in reports from refiners who have their own bulk and retail stations. One refiner who has stations in some of the larger cities and towns of the Middle West states that March sales are running greater than had been predicted for April. The warm weather in February and March which followed the exceptionally cold weather in January is said to have brought the general use of cars by many owners who ordinarily do not take their cars out of winter storage until April.

Gasoline and Naphtha

Six cents appeared to be the low of the U. S. Motor market in sales to jobbers the first of the month. Resale material was available at 5¾ and 5⅞ cents last week but this material appeared to have been absorbed in Oklahoma on Monday and Tuesday.

The larger refiners who have consistently refused to quote under 6½ cents for U. S. Motor gasoline now find themselves within one-half cent of the low of the market for the first time in several weeks. Spot business for these refiners is still slow but it is predicted they will be a factor in the spot market before the end of the month unless they advance their prices. Several of these refiners reported increased shipments on their contracts with jobbers.

There was also an increased demand for the 60-62 400 endpoint grade at a price range of 6¼ to 6¾ cents. The domestic demand for 390 and 375 high gravity gasolines was not active. Several refiners are still shipping on their export sales for these grades. The warmer weather has lessened the jobber demand for these high gravity grades and the domestic demand for these grades probably will continue dull.

The naphtha situation is unchanged.

Kerosene

The domestic demand for kerosene is showing steady improvement. The supplies due to accumulations in December and January have been adequate for the Mid-Continent generally although several refiners are sold up and a number of interrefinery purchases were made during the past week.

There has been a little export buying in North Texas and North Louisiana and a substantial order was reported to be in the making the first of the week. If this order is placed the statistical situation in Oklahoma will be materially improved.

Several refiners who have been quoting 4⅛ cents advanced to 4¼ cents and at least two refiners in Oklahoma have advanced to 4½ cents for the 41-43 water white grades. The same refiners are quoting 5 cents for the 42-44 water white grade.

Natural Gasoline

Trading in natural gasoline is steady and no weak spots were reported on Tuesday. Buyers are not rushing into the market but the demand is sufficient to absorb the spot supplies as they become available from day to day. Grade AA which was available at 5⅜ cents a week ago is now selling at 5½ cents.

There were plenty of Grade BB buyers at 4½ cents. Very little Grade B is being made and it is hardly a factor in the spot market. Limited quantities of Grade A were available at a price range of 5⅝ to 5¾ cents. Grade C was generally quoted the same as Grade BB.

Fuel Oil and Gas Oil

Both fuel oil and gas oil prices appeared firm the first of the week. The material available for spot shipment from week to week is confined to a few plants and a majority of these companies are sold up for March. The demand for the industrial grades of fuel oil continues fair and the supply of the higher gravities which are experiencing seasonal dullness has been curtailed.

Gas oils were sold over a price range of 2½ to 3 cents, the best prices being received for cracking stock or low cold test, straw color grades suitable for furnace oils.

Lubricants and Wax

One of the largest manufacturers on neutral oils is sold up for most grades and has indicated that prices will be advanced before more material is sold. The higher viscosity grades are in demand both on contracts and spot shipments. Steam refined stocks are more freely available and occasional sales below the accepted market are reported. Bright stock prices are unchanged.

Refiners quoting the higher prices on wax are losing the small amount of spot business available to plants located in the Gulf Coast area. Offers under 2½ cents from exporters for 124-126 material are reported but the Oklahoma market continues to be quoted over a price range of 2½ to 2¾ cents.

CO-OPERATIVE TEST ON PIPE CORROSION

(Continued from Page 38)

in all locations be substantially identical, so as to permit an analysis of soil action on various kinds of materials.

3. That duplicate tests be provided at each location, so as to more nearly insure obtaining authentic results.

Coatings included in the program should be described with sufficient thoroughness so their field behavior may be related to their outstanding laboratory characteristics. Laboratory characteristics should be described by means of A.S.T.M. or other accepted test procedures wherever possible. The use of trade names will be a further means of identification which should be given consideration.

It is considered preferable that the 3-inch nipples under discussion be prepared for the most part by coating full lengths of pipe and cutting them into 2-foot long sections. Field application technique will, it is believed, be approximated in this manner.

In general, it is felt that the Bureau of Standards' experience in connection with its previous testing work will serve as a sufficient guide in the adequate preparation of the present program.

This work is being proposed because it is expected that the research involved will supplement the A.G.A. program by providing additional soil exposures and by introducing additional comparisons of fundamental importance.

One relationship of importance which has not been given consideration in research to date is that which exists between results from small coated nipples as against coated operating lines. The committee is particularly desirous that this relationship be investigated. Nipple experiments are so comparatively cheap to make in testing coating improvements that a carefully planned inquiry into their dependability has attracted widespread interest.

Certain limitations, which have been pointed out by Doctor Scott in his proposal for applying coatings to operation lines for the above purpose—limitations with which the committee is in general accord—make it impractical to apply on

the operating lines all of the coatings which the committee is most anxious to see applied to nipples. It is suggested, therefore, that all the coatings involved be divided into classes as follows and that one or more coatings be selected from each class to accomplish the desired comparison.

Classes of Coatings

It is suggested that the following classes will include all of the coatings which manufacturers and users will wish to see involved in the entire program.

General Classification	Type, Number and Name
I BITUMINOUS MATERIALS Containing mineral matter or the general equivalent, i.e., finely divided mineral matter, asbestos fiber, woven cotton fiber, etc.	1—"Cut backs" 2—"Greases" 3—Emulsions 4—Enamels and allied materials a—Asphalt base b—Asphalt and coal tar blend c—Coal tar base
II MINERAL MATERIAL WITH BITUMINOUS FILLER	5—"Mastic"
III Bituminous compounds covered with outer shell of semirigid materials	6—Includes wrappings of felt and asbestos fabrics, wood veneer, etc.
IV Bituminous compounds covered with outer shell of essentially rigid material or possessing metal reinforcing.	7—Cement types 8—Metal types
V Wholly rigid coatings	9—Includes Portland cement, etc.

Committee Suggestions

The committee has the following suggestions which may be used as a guide in selecting from each class the coatings to be applied on both nipples and adjacent operating sections:

1. It is desirable to give preference to coatings included in the A.G.A. program so a tie may be had between their program and the one under discussion.

2. The extent of commercial usage should be taken into account so that as many pipe line companies as possible may relate their own experience to the research program.

3. The development of design data in connection with resistance to soil stress is of particular interest in view of Doctor Scott's findings and coatings which appear to promise valuable data on this point should be included in both nipple tests and the main line sections. Soil stress is understood by the committee to include harmful physical changes of all kinds brought about by soil pressure, soil shrinkage, pipe movement through the soil, etc.

The coatings applied to main lines should of course be described for identification purposes to the same extent as the more extensive list of coatings applied on nipples. The committee recommends that careful consideration be given to avoid misunderstanding as to why the number of coatings applied to main lines has been limited. It is believed that this limitation will be less liable to be misconstrued if all concerned will avoid the use of trade names in reporting on and referring to the main lines tests. Attention to this detail will tend to foster the committee's expectation that the testing program will serve primarily to further the cause of fundamental research.

Statement by Manufacturers

The following statement was issued by representatives of the coating manufacturers attending the meeting:

"At the American Petroleum Institute meeting in Chicago in December, 1929, manufacturers considered in an informal way the question of forming an association of manufacturers of materials for protecting underground pipes against corrosion. The informal meeting seemed to unanimously approve this idea with the result that negotiations were carried on between the leading companies in the industry. These negotiations culminated in a meeting of representatives of 11 of the leading companies in Tulsa on March 17.

"The result of this meeting was the organization of an association known as the "Underground Pipe Protection Institute." The objects of this organization, as expressed in the constitution, are as follows:

"To create a medium through which the members may establish authoritative relations with organizations studying the subject and the economics of the protection of underground pipe against corrosion, that is, Bureau of Standards, American Petroleum Institute, American Gas Association, American Water Works Association and similar technical organizations.

"To promote a better understanding of the problems surrounding the subject and the economics of the protection of underground pipe against corrosion.

"The advancement of the interests of its members and the establishment of friendly relations with the members of technical societies interested in the subject and the economics of the underground protection of pipe.

"To establish and encourage ethical practices within the industry.

"The officers of the institute are as follows: President, E. M. Converse, Dearborn Chemical Co., Chicago; vice president, E. S. Browning, Hill, Hubbell & Co. division, General Paint Corp., Chicago; secretary-treasurer, W. H. T. Thornhill, Wailes, Dove-Hermiston Corp., New York.

"These officers, together with E. V. Rinehardt, Johns-Manville Corp., New York, and William H. Kershaw, The Texas Company, New York, constitute the board of directors.

"The companies represented at the organization meeting were: Hill, Hubbell & Co. division, General Paint Corp.; E. I. Du Pont de Nemours & Co., Inc.; McEverlast, Inc.; the Barrett Co.; Sherwin-Williams Co.; Johns-Manville Corp.; Dearborn Chemical Co.; the Arco Co.; Wailes, Dove-Hermiston Corp.; the Philip Carey Co., and The Texas Company."

CONTINUE OKLAHOMA CURTAILMENT PROGRAM

(Continued from Page 38)

American Petroleum Institute, who had just returned from California.

Producers Demand a Showdown

Mr. Reeser commended Oklahoma operators for their action in continuing the curtailment of their production. He briefly reported the successful efforts of California conservation leaders in bringing the production in that State down to refinery requirements. California producers, Mr. Reeser said, had been given to understand that if they curtailed their production to pipe line demand they could hope for an advanced price. When they voted to cut their production to the required figure they were promptly accorded a substantial increase in price. Oklahoma producers have been curtailing their production for many months but in the midst of their curtailment program the price of their product has been lowered. Now, Mr. Reeser continued, the time has come for Oklahoma producers to inquire of the oil purchasing companies what the producers must do to obtain a better price for their product.

Texas Is Blamed

Chairman Herndon called upon R. L. Young, president of the Carter Oil Co. (Standard of New Jersey), a leading crude oil purchaser in Oklahoma. Mr. Young said that his company was awaiting the result of the movement to cut refinery runs one-seventh, in accordance with the suggestion of Secretary of the Interior Wilbur. He could give no information as to when his company would increase the crude price. Conditions in Texas would have much to do with the establishment of a higher price schedule.

Chairman Herndon announced that Mr. Reeser, in his capacity of president of the American Petroleum Institute, was working to bring about more satisfactory conditions in Texas and that he would devote much time to the matter. Mr. Herndon then called upon W. S. Fitzpatrick, chairman of the board of directors of the Prairie Oil & Gas Co., the largest purchaser of oil in the State.

Producers Commended

Mr. Fitzpatrick said his company was in hearty sympathy with the producer and that it would take part in any movement for the betterment of the producer's position. It had been stated, he said, that all Oklahoma purchasing companies were drawing oil out of storage. He said this was not true in regard to the Prairie Oil & Gas Co., which, he said, was storing some oil. He expressed the belief that the continuation of production curtailment would result in a better market price, but he did not mean this to indicate that the Prairie was promising an advance in the price.

"We are not the leader in establishing the price of Oklahoma crude," he said, "and it seems to me to be up to the leaders to say when better crude prices will be accorded producers." He concluded by saying that if deeper cuts in production would bring about a better price condition his company was willing to reduce the output of its wells, along with other producers. As a purchaser, he said, the Prairie was willing to buy all the oil its refinery customers required rather than take it from storage, but that it was unwilling at such a time as this to buy excess oil and store it.

Report of Joint Committees

The Proration Committees of the Kansas-Oklahoma division of the Mid-Continent Oil & Gas Association met on March 14 and considered the production and demand situation in the State of Oklahoma and called in purchasers of oil and other advisors in an effort to ascertain what would be the probable demand for Oklahoma crude oil for the second quarter of 1930. From the information obtained, the committee arrived at the following conclusions:

"That the potential production of the State is on the increase and that in order to fairly allocate the demand for crude oil in this State for the months of April, May and June, it will be necessary to maintain approximately the same percentages of curtailment as are now being applied to the prorated areas under existing orders of the Corporate Commission. That while there will probably be some seasonal increase in the demand from the State as a whole, it is also true that the refiners are cutting runs and the committee is unable to state to what extent the Sunday shutdown policy may affect a reduction in the amount of crude that otherwise might be taken.

"The Oklahoma City Field is now being curtailed 87½ per cent to approximate the demand from that field, although the existing order permits a production of 25 per cent of potential. There is prospect for some additional outlet for Oklahoma City crude in that additional pipe lines are being constructed to the field. The committee estimates that the effective demand in that area may increase to approximately 116,000 bbls. per day during the approaching quarter. The committee, therefore, recommends that the Oklahoma City Field be left with a maximum allowed production of 25 per cent of potential, with authority in the umpire and operator's committee to fix the degree of curtailment within that maximum, which will permit the operators there to meet the demand as it asserts itself with the understanding, however, that whatever outlet there is for the field as a whole shall be prorated among all the producing leases.

"In the case of the Konowa Pool, the committee finds it is a shallow sand area and that there is serious objection to maintaining the curtailment of 75 per cent as fixed by the previous order and that it is the consensus of opinion that this pool should be placed upon the same basis as other Seminole areas with a curtailment of 30 per cent with the condition, however, that if the pool develops a potential in excess of 20,000 bbls. per day, the permitted production from the pool shall not exceed 70 per cent of 20,000 bbls. or 14,000 bbls. per day.

"For the purposes of the new proration plan, the committee recommends that South Earlsboro be joined with East Earlsboro as one pool and that the curtailment be continued at 66⅔ per cent, and that as to Logan County, the entire Greater Seminole district (outside of South and East Earlsboro), and Allen Dome, Saskwa and the Pearson-St. Louis-Asher area, the curtailment be continued at 30 per cent as in existing orders, and new pools brought in during the proration period to be curtailed 75 per cent as provided in the present order.

"The committee is of the opinion that the application of these percentages to the potentials of the various prorated areas will allow a production in Oklahoma slightly in excess of 600,000 bbls. per day, the amount of said excess depending upon the amount of additional outlet that may develop from the Oklahoma City area.

"With reference to the shutin time on completed wells, the committee recommends the continuance of existing schedules with this proviso: that whenever an operator shuts down drilling wells on Sunday as a matter of policy in observance of the Sunday shutdown movement, he shall receive credit against the required shutin period to the extent of the number of Sundays that the drilling well was thus shut down."

GOOD HEADS CALIFORNIA PURCHASING DEPARTMENT

Carl E. Good, purchasing agent for the Barnsdall companies in the Mid-Continent for the last 10 years, has been transferred to California, where he will have charge of the purchasing department of the Barnsdall Oil Co. of California.

Carl E. Good

Mr. Good will be succeeded in Tulsa by E. O. McClatchey, who has been assistant purchasing agent.

The removal of Mr. Good to California came as the result of largely increased activities of the West Coast Barnsdall subsidiary company, of which R. A. Broomfield is president.

Mr. Good has been with Barnsdall since August, 1919, at which time he joined the land department. Later with the formation of the Mid-Continent purchasing department, he was made head of it. Prior to joining Barnsdall he worked 10 years for the California National Supply Co., serving as district manager in the Midway-Sunset district.

The announcement of Mr. Good's transfer was made at a banquet held at the Tulsa Club in Tulsa on the evening of March 17 attended by 50 Barnsdall executives from all parts of Oklahoma with whom Mr. Good had been closely associated. He was presented with a handsome watch.

ENGINEERS TO MEET AT MIDLAND, TEXAS

(Continued from Page 48)

workable solution. It should be understood that this committee deals in no way with rates but only in the manner and form in which the power consumption is presented in invoice form.

"Organization and Purpose of A.P.I. Field Chapters," by J. R. McWilliams, chief engineer, Skelly Oil Co., Tulsa, Okla. Mr. McWilliams will describe the methods of organizing A.P.I. field chapters and the results accomplished in other districts. These field chapters provide a forum in the individual fields where operators can get together and discuss problems of mutual interest and benefit. Some of the chapters in other districts are meeting monthly and are reporting an ever increasing attendance for the reason that the results obtained are well worth the effort expended. Mr. McWilliams is vice chairman of the Central Committee on Drilling and Production Practice, and is chairman of the Mid-Continent district of the Division of Production. The A.P.I. chapter movement in the Oklahoma-Kansas fields, under his direction, has achieved signal success.

An informal symposium will be held for the discussion of any question or problem that may be presented from anyone in attendance. There are undoubtedly problems in individual fields on which operators desire to hear of the experience or results obtained by operators in other fields and it is included in the program to afford an opportunity to any one having such a problem to seek guidance and information from others in attendance. These questions should be prepared in writing and submitted to the secretary, preferably in advance of the meeting. They should be addressed to E. V. Foran, secretary, Southwestern district, A.P.I. Division of Production, care Fain-McGaha Oil Co., Wichita Falls, Tex.

The following committee reports will be submitted for discussion: "Drilling Practice," by Melbert Schwarz, chairman; and "Production Practice," by W. W. Scott, chairman.

Officers for the Southwestern district for 1930 will be nominated and elected at this meeting. A dinner at 6.30 p. m. will be served in the main ballroom of the Scharbauer Hotel, which will conclude the meeting. The meeting has been so scheduled that those who desire to leave on the 10 o'clock eastbound train may do so.

Field Trips Arranged

Members of the Division of Production residing in Midland, C. W. Alcorn, chairman (care Shell Petroleum Corp.), advise that free trips to any field in the vicinity of Midland have been arranged. This will provide an opportunity to visit the various fields, such as Yates, Wink and Big Lake.

The Midland Chamber of Commerce is arranging a special tour of the Yates and Big Lake Fields. It is proposed to first proceed to Yates where a short description of the interesting development of that area will be given, followed by a trip through the field and luncheon at one of the principal camps. After lunch, the party will proceed to Big Lake and visit that field, including an inspection of the discovery well and the several deep wells now drilling, including the famous well producing from below 8,000 feet. It is proposed to have a short lecture at the deep well covering the principal features of its drilling and producing history.

Late Fields

(Continued from Page 48)

mitted to flow for 15 minutes. The sand from the well cut the connections, making it impossible to produce the well.

Indian Territory Illuminating Oil Co.'s No. 3 N. Emerson, SW cor., Section 30-11-2w, blew in making 2,204 bbls. in 12 hours from Simpson sand at 6,500-23 feet. The well had a gas volume estimated to be 4,000,000 feet. Same company's No. 2 E. Fortson, SW cor. SE NE, Section 24-11-3w, was also completed for 3,364 bbls. in 12 hours from Silicious lime. The top was 6,091 feet and the total depth was 6,478 feet. The well is being produced under a 200-pound back pressure.

Wirt Franklin Petroleum Corp.'s No. 6 Lowery, SW cor. NW NW, Section 12-11-3w, was produced for 12 hours from the Simpson sand at 6,432-68 feet, and made 6,339 bbls. The well is in the north part of the pool.

Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW, Section 14-26-24w, Harper County, was drilling at 7,610 feet in a rotary hole and is the deepest drilling test in the State.

Mid-Continent Petroleum Corp. has abandoned four of its drilling wells on the Harjoche lease in Section 8-6-6, in the Konawa Pool. No. 1 was located in the SE cor. NE SE; No. 2, NE cor. SW SE; No. 3, SE cor. SW SE; No. 4, SW cor. SE.

Production from the Konawa Pool was 10,636 bbls. from 24 wells on the gauge of March 18.

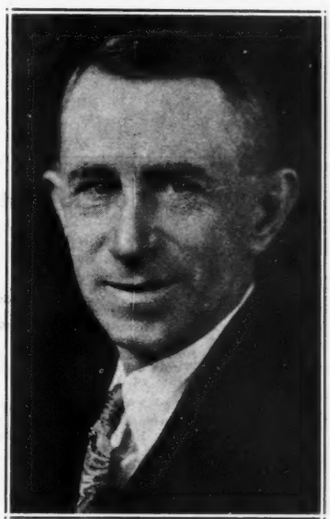
Heenan & Coe's No. 1, in SW Section 1-11-3w, the most northerly test in the Oklahoma City Pool to show oil in the Simpson sand, was coring the sand at 6,355-78 feet.

Anderson & Kerr's No. 1 Morgan, SE cor., Section 19-6-6, made 22 bbls. in 12 hours swabbing from a total depth of 2,970 feet. It extends the production in the Konawa Pool, a mile southwest.

Harris Drilling Co.'s No. 1 Robert, NW cor. NE NW, Section 16-6-6, in the Konawa Pool, swabbed and flowed 335 bbls. from sand at a total depth of 2,908 feet.

Continental Oil Co.'s No. 1 Brown, N half SW Section 10-20-4w, southeastern Garfield County, a wildcat north of the production in Logan County, had top of the Woodford shale at 5,670 feet, and was drilling at 5,680 feet.

MADE SALES MANAGER



W. R. Layne

The Stratford Engineering Co., Petroleum Refining Engineers, Kansas City, Mo., anounces the appointment of W. R. Layne as sales manager of the Mid-Continent territory with offices in Tulsa. Mr. Layne was, for a period of years, pump specialist for the manufacturing department of the Standard Oil Co. of California. For several years he was chief oil pump engineer with the Byron Jackson Co., covering special engineering problems of the oil industry over the entire United States. Mr. Layne comes to the Stratford Engineering Co. from his recent position as Houston sales manager for the same company.

PETROLEUM COURSE AT NORMAN

The school of petroleum engineering of the University of Oklahoma will offer an eight-week field course in the petroleum industry from June 4 to August 1, 1930. Six semester hours of credit will be given to those successfully completing the course. The course will consist of a study of operating methods in the Greater Seminole area and in the new Oklahoma City Field. The course will include a study of drilling methods, oil well completion and methods of production, natural gasoline plants and methods of treating and refining crude oil, and methods of transportation for natural gas and crude oil. Prerequisites for taking the course are at least 75 college or university semester hours, including 8 hours of chemistry, 10 hours of physics and 10 hours of geology.

STABILITY HOPED FOR BY PRESIDENT HOLMES

(Continued from Page 145)

bbls. in other countries. New and scientific methods of finding producing structures and improved methods of drilling that permit of producing from greater depths are likely to prolong this condition over a much longer period than we have ever experienced before. This should not and need not, however, be a menace or serious handicap to the industry if proper advantage can be taken of this ability to explore and determine the underground reserves without the compulsion of producing more than markets can absorb. Much has been accomplished in bringing about a more orderly control of production and we can confidently hope that this will be developed to a degree that will afford a stability to the industry that has heretofore been lacking."

H. F. Wilcox Oil

Report of H. F. Wilcox Oil & Gas Co. and subsidiaries for year ended December 31, 1929, shows profit of $518,928 after interest, depletion, depreciation, provision for contingencies, etc., no mention being made of Federal taxes. This compares with profit of $468,612 in 1928. Capital stock amounts to 428,967 no-par shares.

Union Oil

The net profit of the Union Oil Co. of California for 1929, after all deductions including reserves, amounted to $15,019,635, or $3.56 a share on 4,215,953 shares of $25 par capital stock outstanding at the end of the year. This compares with $11,101,935, or $2.93 a share on 3,795,057 shares for 1928, which was the record broken by the earnings for 1929.

In addition to the high record set in earnings the company established marks for sales and the production of crude oil. The sales for 1929 totaled $88,864,519, as compared with $85,367,771 in 1928. Notwithstanding the larger provision for depreciation, depletion and drilling expenditures the net profit for 1929 was 35 per cent greater than in 1928.

Mid-Continent Petroleum

Report of Mid-Continent Petroleum Corp. and subsidiaries for year ended December 31, 1929, shows net profit of $7,683,378 after interest, depreciation, depletion, abandoned and surrendered leaseholds and Federal taxes, equivalent after dividends paid on the 7 per cent preferred stock redeemed on March 1, 1929, to $4.09 a share on 1,857,912 no-par shares of common stock. This compares with net profit of $3,897,056 in previous year, equal after full year's dividends on 7 per cent preferred stock, to $2.45 a share on 1,410,000 common shares then outstanding.

Tide Water Associated

Report of Tide Water Associated Oil Co. and subsidiaries for year ended December 31, 1929, shows consolidated net income of $14,000,688 after depreciation, Federal taxes, minority inteerst, etc., equivalent after deducting 6 per cent preferred dividends, to $1.73 a share on 5,560,424 no-par shares of common stock. This compares with $14,132,542 or $2.01 a share on 4,852,519 common shares in 1928.

Sun Oil

Stockholders of Sun Oil Co., at annual meeting, approved the proposed increase in the authorized common stock to 1,800,000 shares, no-par value, from 1,500,000 shares. Directors were re-elected. Increase in authorized common is to provide for the payment of common stock dividends which company has customarily paid the past few years. In 1929, a 9 per cent stock dividend, in addition to regular cash dividends, was paid. No new financing is contemplated at this time.

Associated Oil

The Associated Oil Co. and proprietary companies report for last year net profits of $8,940,699 after Federal taxes, depreciation and depletion and canceled leases, equivalent to $3.90 a share on 2,280,412 shares of $25 par stock, compared with $7,590,748, or $3.31 a share in the preceding fiscal year. Gross income amounted to $65,269,908, against $72,815,785 in the preceding year.

Tide Water Oil

Report of Tide Water Oil Co. and subsidiaries for year ended December 31, 1929, shows net income of $6,187,724 after depreciation, depletion, Federal taxes, etc., equivalent after 5 per cent preferred dividends, to $2.36 a share earned on 2,191,820 no-par shares of common stock. This compares with $9,425,730, or $3.85 a share on 2,178,776 shares outstanding in 1928.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Saturday, was as follows:

Sept. 7	59.16	Dec. 11	50.51
Sept. 14	60.40	Dec. 18	49.24
Sept. 21	57.93	Dec. 24	47.36
Sept. 28	58.63	Dec. 31	48.86
Oct. 5	57.00	Jan. 8	48.56
Oct. 12	59.75	Jan. 15	48.38
Oct. 19	58.70	Jan. 22	47.13
Oct. 26	54.59	Jan. 29	47.46
Oct. 31	42.29	Feb. 5	48.13
Nov. 8	48.31	Feb. 12	47.49
Nov. 15	47.61	Feb. 19	45.85
Nov. 22	47.76	Feb. 26	46.71
Nov. 29	48.60	Mar. 5	46.79
Dec. 4	50.60	Mar. 14	48.30

H. M. DAWES APPROVES REFINERY CURTAILMENT

In addition to those oil refining companies which have announced their intention of curtailing operations in accordance with the purpose of the suggestion of the Federal Oil Conservation Board, others have signified they will cooperate. Many of them state they had already been reducing their runs of crude oil to prevent unnecessary additions of gasoline to the large amount in storage.

Pointing out that refinery operations have been out of step with consuming requirements and producing efforts, and that "the almost unanimously favorable reaction to the effort to reach the objective suggested by the Federal Conservation Board is a most encouraging evidence of the will and the ability of the industry to respond to intelligent leadership," H. M. Dawes, president of the Pure Oil Co., stated:

"Just how the individual units bring their operations into conformity with the spirit of this policy is an individual problem, dependent upon the particular situation of each refinery. Pure Oil Co. in its operations is most anxious to cooperate in every possible way, and views the matter as a constructive suggestion which will result very quickly in improved conditions."

J. H. Graham, president of Indian Refining Co., said: "No refinery can operate on a six-day week, but we have cut our runs to less than six-sevenths of normal crude throughput."

Beacon Oil Co. issued a statement declaring a one-seventh curtailment will be put in force, although the company has not accumulated an excess of crude and gasoline and its operations have for a long time been in balance.

WILLIAM PEARCE DIES

CHATHAM, Ontario, Mar. 15.—William Pearce, a pioneer of the oil industry in Alberta, died recently at Calgary, age 82 years. A civil engineer by profession, Mr. Pearce was one of the original organizers of the Calgary Petroleum Products Co., which drilled the first producing well in the Turner Valley Field in 1913; and when that company was merged in the Royalite Oil Co. he continued as a director.

ELEVENTH WELL IN VAN POOL SMALL; TWO NEW WILDCAT TESTS ANNOUNCED

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Mar. 17.—Pure Oil Co.'s No. 1 Crim, located 250 feet from the south line and 690 feet from the east line of the Crim 57-acre tract, 2,500 feet northwest of the discovery well, is now showing up as a small producer at a total depth of 3,037 feet, standing with 2,200 feet of oil in the hole. On March 16 it swabbed a total of 33 bbls. Top of the Woodbine in this western edge well is 2,880 feet. This has been the first encouraging week for this test, it having been running far lower than other wells, and appearing as a possible dry hole on this side of the field, making a defining test on the west. The past two day's work has brought it into the producing class, although it does not look to be more than a small one. This will make the eleventh producer for the Van Field in Van Zandt County.

Two more wildcat locations were announced for Van Zandt County this week. Hartt Oil Co.'s No. 1 Dr. L. M. Cox in the A. C. Night Survey, 1,785 feet from the south line and 524 feet from the west line. A derrick is standing on this location. Pandem Oil Corp. has announced a location on the Gibbard farm, 3,300 feet from the north line and 300 feet from the west line in the Sunnigas Survey.

Several drilling wells in the Van Pool have cored saturated sands during the week, and are due for completion during the next seven-day period. The Texas Company's No. 1 R. V. White, east of Pure Oil Co.'s No. 1 Magers in the Nacogdoches County School Lands, encountered a gas blowout at 2,791 feet and was killed to enable further drilling. At present it is coring at this depth. This is one of the wells due for completion within a couple of days.

Anderson County

Humble Oil & Refining Co.'s No. 1 W. Johnson, 158½-acre tract in James Hall Survey, 995 feet west of east and 1,000 feet north of south line of farm and survey, is drilling at 2,431 feet in shale.

Magnolia Petroleum Co.'s No. 2 Williams, 150 feet out of NW cor. south 480-acre tract in William Bledsoe Survey, cemented 10-inch casing at 1,708 feet, topped Pecan Gap at 3,880 feet, base 4,100 feet and is drilling at 4,170 feet in shale.

Roeser and others' No. 1 W. L. Moody, 200 feet out of SW cor. of east 100-acre tract, James Welch Survey, topped Pecan Gap at 2,953 feet, base 3,120 feet, topped Austin chalk 4,114 feet, had gas show at 4,108 feet, set casing at 4,453 feet, total depth 4,492 feet in broken shale and lime, drilling ahead.

Sun Oil Co.'s No. 1 Bowers & Maier, 1,000 feet northeast of southwest and 1,450 feet northwest of southeast lines of 548-acre tract in E. G. Mayers, topped chalk 987 feet, drilled to a total depth of 997 feet and cemented back to 500 feet to straighten hole, which is 8° off.

Henderson County

H. B. Ashburn and others' No. 1 T. E. Barry, located center of Barry's 59-acre tract in A. York Survey, moving in rotary.

Cranfill & Reynolds and Louisiana Oil & Refining Co.'s No. 1 Broome, 1,350 feet south of north and 150 feet east of west lines of easterly Broom farm in Samuel Chears Survey, topped Midway at 1,104 feet, topped Pecan Gap at 2,695 feet and is drilling at 2,750 feet.

Smith County

East Texas Oil Corp.'s No. 1 People National Bank (Kadane), 150 feet south and east of NW cor. of 259-acre tract, John McFadden Survey, topped the Pecan chalk at 2,375 feet, base 2,550 feet and is drilling at 2,640 feet.

Deep Rock Oil Co.'s No. 1 Bowdoin, in Martin Lout Survey, Lindale district, topped the Midway at 1,715 feet, topped the Navarro at 2,285 feet, topped the Pecan Gap at 3,338 feet and is drilling 3,448 feet in hard Pecan Gap.

Owen Sloan Oil Co.'s (Davis and others') No. 1 Starnes, 846 feet along west line of John Waller Survey from NE cor. of J. O. Dillard Survey and 80 feet east at right angles to west line of J. Waller Survey, is drilling in sandy shale at 1,322 feet.

Sutton and others' No. 1 Hammon, 150 feet out of SW cor. of W. D. Hammond tract in James Reed Survey, is shut down in shale at 1,255 feet.

DAILY AVERAGE VAN ZANDT PRODUCTION

Week Ended March 15

Name of company and well—	Bbls.
Pure's No. 1 Jarman, two 1-inch chokes	588
Pure's No. 1 Thompson, one-half inch choke	1,379
Pure's No. 1 Wells, three-fourths inch choke	878
Pure's No. 1 Magers, two 1-inch chokes	383
Pure-Shell's No. 1 Tunnell, one-half inch choke	1,523
Pure-Shell's No. 2 Tunnell, one-half inch choke	1,295
Pure-Shell's No. 1 Fowler, one-half inch choke	1,274
Pure-Texas' No. 1 Tunnell, 1-inch choke	281
Pure-Texas' No. 1 White, one-half inch choke	1,156
Pure-Sun's No. 1 Thompson, one-half inch choke	1,005
Total	9,762

Daily average production of the various pools during the past week follows:

EAST CENTRAL TEXAS

Boggy Creek	3,500
Cedar Creek	45
Currie	360
Hill County	45
Mexia	4,195
Minerva	500
Nigger Creek	170
Powell	5,892
Richland	250
Thrall	32
Van	9,997
Wortham	885
Total East Central Texas	25,871
Week ending March 8	26,019
Decrease	148

GULF COAST MARKET NOW SEEMS STABILIZED

HOUSTON, Tex., Mar. 17.—With the exception mainly of gasolines, the Gulf Coast domestic refinery market was firm Tuesday. Continued steady movement of pale and neutral oils during the week indicated a healthy situation which promises to make March the best month in the past year. A confidence in the situation which started when the price structure failed to weaken at the recent crude price break continues to grow among sellers and buyers alike.

Fuel oils continued to be consumed in greater amount for cracking stock in preference to crude which is being stored as much as possible, and, with the movement of several cargoes to the East Coast and to foreign ports, the fuel situation is in fairly good shape. Refiners are finding no occasion to force sales, although the general spot domestic demand has been inactive. As a whole, the coastal market seems fairly stabilized at present quotations.

INCREASES CAPITALIZATION

W-K-M Co., Inc., 220 Roberts Street, Houston, Tex., manufacturers and distributors of industrial, oil field, pipe line and tractor equipment has become an open corporation, and increased its total capitalization, on the basis of new shares it is issuing to $900,000. This includes 3,000 shares of $50 par, 8 per cent dividend preferred and 30,000 shares of no-par value common.

The increased capitalization of the company follows 10½ years of growth and expansion in both the manufacture and distribution facilities.

James A. Baker, Jr., of Houston, was elected a director March 5. Other directors of the company are: Fred McManis, president; L. O. Keon, vice president, and D. J. Bryant, secretary and treasurer.

EAST CENTRAL TEXAS WILDCATS

VAN ZANDT COUNTY

Central Oil Co.'s No. 1 West, Ben Wheeler district — T.D. 3,535 ft.; to deepen.
Dennis Oil Co.'s No. 1 Swain, John Walling Sur. — Tested fresh water 1,127 ft.; drlg. 1,590 ft.
Hart Oil Co.'s No. 1 Swain, 102 ft. from N, 209 ft. from W of 2.3-acre tract, John Walling Survey — Location.
W. B. Powell's No. 1 Bailey, 905 ft. from S, 150 ft. from E of F. Bailey's 51-acre tract, 6 miles SW of Van — Drlg. 1,914 ft.; shale.
Pure Oil Co.'s No. 1 Crim, 250 ft. from S line, 690 ft. from E line, Crim tract on 57-acre tract, 2,500 ft. NW of discovery — T.D. 3,037 ft.; standing 2,200 ft. oil in hole; swabbed 33 bbls. on Mar. 16; top of Woodbine 2,880 ft.
Sprinkler et al's No. 1 Andres, Margaret Neal Sur., SW of Canton — Rigging up rotary.
Van Zandt Oil & Dev. Co.'s No. 1 Robinson, NE cor., Bardo Sur., 4 miles E of Grand Saline — Drlg. 2,518 ft.; sandy shale.
Pure's No. 1 D. R. Howell, 570 ft. S of N line and 440 ft. W of E line of Howell's 59.2-acre tract, H. V. Moore Sur., SW of pool — Drlg. 2,687 ft.; saturations at 2,647 and 2,677 ft.
The Texas Company's No. 1 R. V. White, 665 ft. N of S line and 250 ft. E of W line of White 33.7-acre tract in Nacogdoches CSL E of Pure's No. 1 Magers. — Coring at 2,791 ft; gas blowout here; killed with baroid.
Pure Oil Co.'s No. 1 Clark, 645 ft. S of N line and 105 ft. W of E line of Clark 63.3-acre tract, John Walling Sur., W offset to Texas' No. 1 Tunnell — Drlg. 2,780 ft. red shale; fair saturation at 2,770-80 ft.
Pure Oil Co.'s No. 1 Tunnell, 250 ft. S of N line, 200 ft. E of W line of Tunnell's 97.8-acre tract, John Walling Sur., E of Shell's No. 1 Fowler — Drlg. plug.
Pure Oil Co.'s No. 2 Thompson, 525 ft. S of N line and 270 ft. E of W line of J. T. Thompson 49.4-acre tract, Mund Gross Sur., E offset to Pure's No. 1 Wells — Drlg. 2,494 ft.; saturation 2,444 ft.
The Texas Company's No. 1 Tunnell, 645 ft. S of N line and 105 ft. E of W line of R. A. Tunnell's 101.7-acre tract, John Walling Sur., E offset to The Texas Company's No. 1-A Tunnell — Drlg. 2,688 ft.
Shell Pet. Corp.'s No. 3 Tunnell, 250 ft. N of S line and 200 ft. W of E line of Tunnell's 21.7-acre lease, John Walling Sur., N offset to Shell's No. 1 Fowler — Drlg. 2,560 ft.; saturation 2,550-60 ft.
Pure-Humble's No. 1 L. V. Freeman, 250 ft. from E and 712 ft. from N line of 31.5-acre tract, John Walling Sur., half-mile E of discovery — Drlg. 905 ft.; shale.
Cranfill & Reynolds' No. 1 Coker, 160 ft. from S and W lines of Coker's 85.5-acre tract, William Daniel Sur., 2½ miles NE of Van Pool — Rigging up.
Texas Chief Oil Co.'s No. 1 Foster, 6 miles S of town of Canton — Spudded and S.D.
Daniels et al's No. 1 Fannie Cumbine, John Wright Sur. — Derrick.
Hart Pet. Co.'s No. 1 L. L. Swain, 102 ft. S of N and 209 ft. E of W lines of 2-acre tract in SE cor. Swain 43.8-acre tract — Location.
Hart Oil Co.'s No. 1 Dr. L. M. Cox, A. C. Night Sur., 1,785 ft. N of S line and 524 ft. E of line — Derrick up.
Shell Pet. Corp.'s No. 1 Fowler — Topped Pecan Gap chalk 2,233 ft.; drlg. 2,299 ft.
Pure Oil Co.'s No. 1 Wells — Drlg. 245 ft.
Pure Oil Co. and Hill & Hill's No. 1 Peters — Rigging up.
Pure Oil Co.'s No. 1 Ellison — Drlg 141 ft.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 54)

Texas Pet. Co.'s No. 3 H. C. Gayle, 700 ft. S of No. 2, Blk. 39, in the C. A. Yoakum Sur. — Location.
Moore-Jauer's No. 1 Holly R. Ellison — T. D. 1,980 ft.; shut down

BROOKS COUNTY

Amos Dinn, trustee's No. 3 Garcia-Ramos, Share B-1, Las Mestenas y Gonzales grant, 1,300 ft. S line, 2,325 ft. W line of Share B-1 — T. D. 1,655 ft.; standing.
Humble Oil & Ref. Co. and Shell Pet. Corp.'s No. 1 Singer, Alta Verde Subd., 2,500 ft. S and N line, 333 ft. W and E line of Section 312 — T. D. 3,600 ft.; drlg. in gumbo and sticky shale.

CALDWELL COUNTY

W. E. Allaun and Calco Pet. Co.'s No. 1 Martin — T. D. 2,920 ft.; preparing to shoot.
Keen & Malcolm's No. 1 Mollie McNeal, George C. Kimball Sur., 2,500 ft. to W line, 860 ft. to N line, 1 mile S from old Luling Field — T. D. 2,080 ft.; drlg. in chalk.
G. R. McIntire's No. 1 J. G. Towns in the I. Weldon Sur., 4,900 ft. to NE line, 1,350 ft. to SE line of Sur. — T. D. 2,630 ft. in chalk; shut down.
Cranfill & Reynolds' No. 1 M. L. Stroun, 150 ft. from SE and SW line of farm of Pablo Martens Sur. — T. D. 1,801 ft. (corrected depth).
Trinity Drillers' No. 1 McMullen, 2,125 ft. from NE line, 150 ft. from NW line of Sur., Gibson Betty Sur. — T. D. 1,500 ft.; drlg. in shale.

DEWITT COUNTY

Gibson & McIntyre's No. 1 William Van Roeder — T. D. 1,480 ft.; shut down.
F. P. Zoch's No. 1 Steinman, John Garelli Sur., 976 ft.
H. T. Roe's No. 1 Leinhardt — T. D. 1,800 ft.; working over machinery to start up.

DIMMITT COUNTY

Texas Fuel Gas Co.'s No. 1 City Natl Bank (Laxon) — T. D. 680 ft.

DUVAL COUNTY

T. W. Callahan and W. M. Howard's No. 1 J. M. Luby, 3,960 ft. N line, 3,960 ft. W line Sur. 24 — Moving on.
National Oil Co.'s No. 2 Ball, Agua Poquita Sur., Blk. 3 — T. D. 3,206 ft.; drlg. hard shale.
F. P. Zoch's No. 1 King, Blk. 25, Hoffer and Smith Subd., W. R. King ranch, Diego Hinijosa grant, 660 ft. N line, 660 ft. E line — T. D. 3,712 ft.; coring.
Southern Oil Co.'s No. 1 Welder Wood, Sur. 216 — T. D. 750 ft.; standing waiting on water.

EDWARDS COUNTY

Phillips Pet. Corp.'s No. 2 A. G. Holman, 330 ft. from N and E lines of SE of tract, C.C.S.D.&N.G.R.G. Sur. No. 25 — Location.
Griffith's No. 1 Wardlaw, 150 ft. from S line, 1,505 ft. from Sec. 60, Blk. US, J. J. Clift Sur. — shale. T. D. 3,000 ft.; shut down, contract depth.

FRIO COUNTY

Frank B. LeFeure's No. 1 H. W. and R. L. Eschenburg, Edward Gallagher Sur. No. 789, 3,980 ft. W of SE cor. of Edward Gallagher Sur. No. 788 and 1,320 ft. S of N line of Edward Gallagher Sur. No. 789 — T. D. 1,702 ft.; drlg. in shale.
Walton & North's No. 1 Trebble, 150 ft. N line, 150 ft. E line, Sec. 64, in the Henry Castro Sur. — T. D. 200 ft.; set surface csg.

FAYETTE COUNTY

Kelly et al's No. 1 E. M. Burke in the C. J. A. Weaver Sur. ..... T. D. 488 ft.; shut down.

Moore et al's No. 1 Kerr, 250 varas S of CNL of M. Muldoon lease ..... T. D. 2,485 ft.; shut down.

Muldoon Oil Co.'s No. 1 J. A. Kerr, 2,900 ft. from S, 3,250 ft. from W of M. Muldoon Sur., 2 miles W of Muldoon ..... Spudded in.

GOLIAD COUNTY

Wm. F. Morgan's No. 1 George Ray in Pedro Trevano Sur., 150 ft. from SE and NW line of George Ray 627-ac. tract ..... T. D. 3,000 ft.; tested salt water at 2,740 ft.

Humble Oil & Ref. Co.'s No. 1 Lackey & Weldon, 2,000 ft. from SE and SW lines of the Lackey & Weldon 1,000-ac. tract out of the most SW cor. thereof in the Javiano Gomez Sur. ..... Spudded in.

GONZALES COUNTY

Acme Oil & Royalty Corp.'s No. 1 Weber, Thomas Wright Sur. ..... T. D. 2,220 ft.; shut down.

Fitzsimmons & Perrinot's No. 1 Z. Huber, 2,100 varas from NW line, 1,450 varas from NE line (river) of survey, 2¾ miles SE of Darst Creek in Stephen Smith Sur. ..... T. D. 2,340 ft.; drlg. hard sandy marl, streaks of lime.

Alice R. Garrett's No. 1 W. H. Cardwell, 150 ft. from SW line, 1,650 ft. from SE line of Sur., 12 miles S from Gonzales in the Byrd Lockhart Sur. ..... Spudded and shut down.

Finnell & Elam's No. 1 Robinson, Liverpool Sur. ..... T. D. 1,575 ft. (depth corrected); abandoned.

Finnell & Elam's No. 1 J. F. Robinson, 2,000 ft. N line, 4,420 ft. E line in the J. H. Livergood, 2½ miles NE from Waelder ..... Rigging up.

GUADALUPE COUNTY

Trinity Drillers et al's No. 1 Wm. Harboth (212-ac.), 1,000 ft. from NE line, 4,500 ft. from NW line of the Robert Hall Sur. ..... T. D. 2,597 ft.; drlg. in Edwards; dry.

Turman et al's No. 1 St. Charles, 150 ft. N line, 300 ft. from W line of Sur., 5 miles SW of Grayburg's No. 1 Wells, SE cor. of county in the J. A. Miller Sur. ..... T. D. 3,206 ft.; hard Taylor.

Trinity Drillers' No. 1 J. M. White, 975 ft. from NE line, 750 ft. from SE line of 166-ac. farm in the Mich Miller Sur. ..... Derrick (corrected).

HAYS COUNTY

John H. Foster, trustee's No. 2 W. G. Barber, 7 miles SE of Buda ..... T. D. 671 ft.; shut down.

JIM WELLS COUNTY

E. W. Ogden's No. 1 G. Farris, M. Perez Sur. ..... T. D. 2,615 ft.; shut down.

KARNES COUNTY

Ruby & Claypool's No. 1 Tom V. Zepeda Sur., 850 ft. N line, 1,600 ft. E line ..... T. D. 2,150 ft.; taken over by Morgan Oil Corp.

Mundine Investment Co.'s No. 1 A. D. Wilburn, C of 143 ac. in H. K. Hardy Sur., 3 miles SE from Dunge ..... Location.

Hurador Oil Co.'s No. 1 W. E. Porter ..... T. D. 3,400 ft.; shut down.

KENDALL COUNTY

Borgett et al's No. 1 Haag, W. Avery Sur. ..... T. D. 680 ft.; shut down for repairs.

Seaboard Oil & Gas Co.'s No. 1, SW cor. of Sur. in the Miguel dle Toro Sur., 3 miles N from Sisterdale .... Spudded in.

Dixon Oil Co.'s No. 1 Ottmer Behr, W of H.T.&B.R.R. Sur., 3½ miles SE from Sisterdale ..... T. D. 260 ft.; drlg. in blue lime; hole full of water (cable tools).

Sterling's No. 1 Willie Werner, 2 miles NW from Borgett No. 1 Haag ..... T. D. 914 ft.; shut down; pump installed but not pumping.

KERR COUNTY

Mashe and Tunstill's No. 1 Love Ranch, 1,000 ft. from W line of Sec. 1,594, 100 ft. S of S line of Sec. 1,597 in the G.C.S.D.&R.G.N.G. Sur. ..... Moving in.

KLEBERG COUNTY

Bowen-Sarles' No. 1 Robert H. Simmons, Sec. 7, King Subd., 3 miles W from Ricardo ..... T. D. 415 ft.; standing.

KINNEY COUNTY

Lloyd Oil Co.'s No. 1 G. B. Moore, Sur. 117 ..... T. D. 3,000 ft.; producing sulphur water.

A. Blume et al's No. 2 Herbst, 1,731 ft. W and S lines of Sur. in the Poindexter-Burns Sur. ..... Spudded in.

Mardon Oil Co.'s No. 2 Jim Clamp, in the John Winters Sur. No. 846, near No. 1 ..... Spudded in.

LASALLE COUNTY

Salt Lake City Pet. Co.'s No. 1 Beckwith, Sur. 17, 150 ft. S line, 150 ft. E line ..... T. D. 2,760 ft.; cored sand; saturated with very heavy oil.

LAVACA COUNTY

McElreath & Suggett's No. 1 Julius Heinshohn, 361 ft. to E, 523 ft. to S line of farm in the G.W.& W.H. Sur. ..... Derrick.

LEE COUNTY

Byrd et al's No. 1 H. L. Bastle, 1,200 ft. N and 1,000 ft. E of 80-ac. tract of Wm. Johnson ..... T. D. 3,612 ft.; shut down; hole full of water.

Texas-Louisiana Carbon Corp.'s No. 1 Bryan, in the S. F. Austin Sur., 1,200 ft. N and W of 1,200-ac. farm. ..... T. D. 3,380 ft.; drill stem stuck.

Todor Oil Corp.'s No. 1 H. Zoesch, in the J. Meeks Sur., 150 ft. N and 900 ft. W of S. Meeks Sur. .... T. D. 2,000 ft.; shut down.

LIVE OAK COUNTY

O'Neil & Catlett's No. 1 Smith, 900 ft. SW line, 150 ft. NW line ..... T. D. 4,512 ft.; shut down; cored dry sand at 4,512 ft.

Dr. J. K. Rowan Co.'s No. 1 Lynne Ranch, 171 ft. W of George West ..... Location.

Simmons Oil Co.'s No. 1 Richard Coquat, in James C. Hill Sur., 2,250 ft. to S line, 1,750 ft. to E line, 7 miles NE of Oakville ..... T. D. 4,012 ft ; shut down; awaiting orders.

MAVERICK COUNTY

Rycade Oil Corp.'s No. 6 Chittim, 1,455 ft. from S, 320 ft. from W of Sec. 116, Blk. 7, I.&G.N. Sur. ..... Rigging up.

Rycade Oil Corp.'s No. 5 Chittim ..... T. D. 3,442 ft.; standing; hole full sulphur water.

Rycade Oil Corp.'s No. 5 Sullivan, in C of Sec. 82, Blk. 7, in the I.&G.N. Sur. ..... T. D. 950 ft.; drlg. in lime.

Rycade Oil Corp.'s No. 3 Chittim, Blk. 7, Sur. 116, H.& G.N., 175 ft. N of No. 1, 10 ft. W, 225 ft. S line .... T. D. 6,636 ft.; shut down for orders.

MEDINA COUNTY

Pat Armstrong's No. 1 C. W. Butts in George C. Hanson Sur. ..... T. D. 1,102 ft.; shut down.

Pan American Pet. Co.'s No. 1 Antoine Hart in Harrison Sur. No. 799, 15 miles S from Hondo ..... Laying gas line to rig.

Donaldson Oil & Dev. Co.'s No. 2 Adams Co., James Hillemmeyer No. 25 Sur., 500 ft. to E line of Sur., 150 ft. to S line of N half of Sur. ..... Rig up.

F. E. Tegler's No. 6 J. P. Nixon, NW cor. J. J. Durst Sur. No. 14 ..... Location.

Pat Armstrong's No. 1 Crawford, 1,389 ft. N line, 2,550 ft. E line of Sur., 478.6 miles W from Devine ..... Rigging up.

Pearson Oil Co.'s No. 4 Mangold, 1,600 ft. W of E line, 1,800 ft. N of S line of Sur. in the I. S. Palmer Sur. No. 20, south from Noonan ..... T. D. 765 ft.; drilling plug; make 2,000,000 ft. gas and fresh water.

Mid-Kansas-Gulf's No. 1 Jessie Newton, 150 ft. E of W line, 750 ft. N of S line of 624-ac. tract, E one-third of Maximo Bernald Sur. 762, 15 miles SW from Hondo ..... T. D. 1,990 ft.; dry and abandoned.

Pure Oil Co.'s No. 1 Nick F. Fahn in Amos Hudson Sur. No. 587, near NW line of Sur. ..... T. D. 1,800 ft.; core drilling; in lime rock.

Cecil Switzer's No. 1 Zerr, 6 miles west of Hondo ..... T. D. 3,755 feet; dry; abandoned.

MILAM COUNTY

Service Oil & Gas Co.'s No. 1 Muldrow, L. Taylor Sur., SE cor. ..... Location.

Hill & Bonwell's No. 1 B. Booker, James Welch Sur. .. Fishing 2,020 ft.

Lloyd Oil Corp.'s No. 1 San Clement, Fokes Sur. ..... Spudded in.

A. H. Wray's No. 1 D. D. Fowler ..... T. D. 1,688 ft.; sidetracked 360 ft. of drill pipe lost in hole; now drlg.

McMULLEN COUNTY

Cowboys Oil Co.'s No. 1 Shiner, H. M. Brewer Sur. .... T. D. 3,700 ft.; coring hard formation.

Southern Crude Oil Purch. Co.'s No. 1 J. B. Baker, 2,310 ft. from S and E lines of Sec. 7 in the F. M. Lowe Sur. ..... T. D. 2,568 ft.; drlg. in sand.

NUECES COUNTY

H. Grimm et al's No. 1 A. R. Roberts, Blk. 79, Winter Vegt. Garden Subd., 6 miles NW of Robstown, 12 miles NE Agua Dulce Field ..... T. D. 3,145 ft.; cored dry sandy shale.

SAN PATRICIO COUNTY

George B. Pickett's No. 1 Baldwin, 9,000 varas due E of Denton, 1,200 ft. S of the SE cor. of O'Niel Sur., Abstract 211 ..... Spudded in.

LaFeria Oil & Gas Co.'s No. 1 C. C. Smith in J. C. White Sur., 690 ft. to N line, 350 ft. to E line ..... T. D. 2,252 ft.; tested salt water.

STARR COUNTY

Smith & Adams' No. 1 Welch, Perdernal Sur. ..... Standing at 757 ft.; sand showing gas.

UVALDE COUNTY

Waldrop & Welch's No. 1 H. S. Benson, 2 miles NW of Uvalde ..... T. D. 920 ft.; working to shut off water.

Waldrop & Welsh's No. 1 E. R. Edmonds, 1,750 ft. NW, 7,200 ft. W of Sec. 71 in the A. Gomez Sur., 8 miles S from Uvalde ..... T. D. 780 ft.; drlg. in Edwards.

Phantom Oil Co.'s No. 1 Claudt, Sec. 661 ..... T. D. 404 ft.; drlg. in lime.

WILLACY COUNTY

Weimer-Richardson's No. 1 Elmore ..... T. D. 1,860 ft.; shut down in gumbo.

WILLIAMSON COUNTY

Harlem et al's No. 1 H. H. Stiles, in the J. Bevil Sur., 220 ft. N and 330 ft. E of Sur. ..... Rigging up.

Fred Beaty's No. 1 H. Bland, 450 ft. from N line, 1,000 ft. from E line of tract in the P. Coursey Sur., 1 mile east from Taylor ..... T. D. 1,176 ft.; shut down .

Fred Beatty's No. 1 J. B. Pumphrey, 1,328 ft. from S and E lines of Mrs. J. B. Pumphrey 168-ac. tract in the W. Cartwright Sur. ..... Rigging up.

C. P. Link's No. 1 T. P. Simmons, 150 ft. W of CEL in the S. Miller Sur. ..... Location.

E. L. Chapman's No. 1 Fox in the S. Miller Sur. ..... T. D. 1,917 ft.; hole full of oil but no gas.

E. L. Chapman's No. 2 Fox, 150 ft. SW line, 750 ft. NW line of 93-ac. tract in the S. Miller Sur. ..... T. D. 1,000 ft.; drlg.

G. B. Peterman's No. 2 J. C. Abbott, 450 ft. from S and W line of Abbott 100-ac. tract in the Simon Miller Sur., SE from Thrall ..... Rigging up.

Bridwell et al's No. 1 H. L. Martin, 1,150 ft. from N line, 150 ft. from W line of Simon Miller Sur. ..... Rigging up.

McNeil et al's No. 1 R. L. Abbott, 330 ft. NW line, 150 ft. NE line of Abbott 15-ac. tract in the S. Miller Sur. ..... Spudded in.

Powell & Kykendall's No. 1 Christian Mager in the W Byerly Sur., 150 ft. N and 450 ft. E of farms of 150 acres ..... Old well deepening.

E. L. Chapman's No. 3 W. Fuchs, 170 ft. from S, 758 ft. E of NW cor. of R. L. Abbott farm, or 350 ft. E of No. 2 in Simon Miller ..... Derrick.

E. L. Chapman's No. 1 Barney Lawrence, 330 ft. from SE and SW lines of farm in the Simon Miller Sur. ..... Rigging up.

E. L. Chapman's No. 1 J. F. McConnell, 150 ft. from S and W of 100-ac. farm in the Simon Miller Sur. ..... Derrick.

E. R. Ertell's No. 1 J. F. McConnell, 295 ft. from N line, 180 ft. from W of S 50-ac. of 100-ac. farm in the Simon Miller Sur. ..... Derrick.

Keeshan et al's No. 1 R. L. Abbott, 170 ft. from N line, 772 ft. from W line of farm in the Simon Miller Sur. ..... Derrick up.

E. W. Marts et al's No. 1 R. L. Abbott ..... Spudded in.

Taylor Temple Oil Co.'s No. 1 F. M. Cain, 876 ft. from E line, 150 ft. from N line of C. D. Johnson 109-ac. tract in the S. Miller Sur. ..... Rigging up rotary.

J. A. Thompson's No. 1 T. H. Martin, 150 ft. N and E lines of 20-ac. tract in the S. Miller Sur ..... Location.

Westheimer & Daube's No. 1 R. L. Abbott, 150 ft. from N and W lines of 57-ac. tract in the S. Miller Sur. ..... Location.

R. Wilder's No. 1 H. T. Martin, 158 ft. from N and E lines of H. T. Martin 76.25-ac. tract in the S. Miller Sur. ..... Rigging up rotary.

Scomyers Edwards et al's No. 1 J. C. Abbott, 88 ft. from N line, 300 ft. from E line of Abbott 100-ac. tract in the Simon Miller Sur., SE from Thrall .... T. D. 1,780 ft.; heading 5 bbls. hour.

Simms Oil Co.'s No. 1 L. E. Lawrence, 150 ft. from N line, 150 ft. from W line of Lawrence 100-ac. tract in the Simon Miller Sur., SE from Thrall ..... T. D. 1,925 ft.; drlg.

L. W. Wilson et al's No. 1 W. L. Lawrence, 150 ft. from W line and C N and S of 35-ac. tract or 1,400 ft. from SW line, 1,450 ft. SW line of H. Owens Sur. .. Spudded in.

WILSON COUNTY

Empire Gas & Fuel Co.'s No. 1 Shook, 1,350 ft. NW line, 7,100 ft. SW line Vincente Zepeda Sur. ..... T. D. 3,295 ft.; drlg. in chalk.

ZAPATA COUNTY

John Pappas' No. 2 Cuellar, Por. 33 and 34 ..... T. D. 1,890 ft.; sand 1,880-90 shows gas.

National Oil Co.'s No. 1 D. B. Adams ..... T. D. 690 ft.; shut down; lack of water; making considerable gas.

ZAVALA COUNTY

Weigand Bros.' No. 1 W. L. Gates, Hooper & Wade Sur. No. 13, 1,320 ft. S of N line, 1,220 ft. W of NE cor. Sur., about 16 miles S of Batesville ..... T. D. 1,700 ft.; drlg. in shale.

Jack Baldwin's No. 1 J. R. Price, in the W. E. Erskin Sur. No. 34 ..... Spudded in and shut down.

Southern Crude Oil Purch. Co.'s No. 1 Nat M. Washer in the T. Pinckhardt Sur. No. 180, 1 deg. E, 6,795 ft. from SE cor. ..... T. D. 3,034 ft.; drlg. in anhydrite.

Ike Pryor's No. 1 Martha Campbell, 400 ft. from N line, 5,400 ft. from E cor. of Sur., Sec. 99, in the Martha Campbell Sur., 3½ miles NE from La Pryor.. T. D. 1,300 ft.; drlg.

Texas Fuel & Gas Co.'s No. 4 West Sur. 44 ..... T. D. 814 ft.; gas; completed 5,000,000 ft.

Texas Fuel & Gas Co.'s No. 1 Matthews in upper Byrd Ranch ..... T. D. 1,205 ft.; dropped from reports until work is resumed.

F. Baldwin's No. 1 Washer, 300 ft. S and E of Sec. 34 in the W. E. Erskine Sur. ..... Spudded in and shut down.

Of Interest to Sales Departments

CONNECTICUT ATTEMPTS INSPECTION OF LUB OIL

NEW YORK, Mar. 15.—Ten of the principal oil companies operating in Connecticut have filed suits for an injunction to restrain the State of Connecticut from enforcing the State's new act "concerning the sale of motor lubricating oils," passed at the last session of the legislature.

The new law, dealing with the specifications of motor lubricants offered for sale in Connecticut, requires that every container of oil sold for internal combustion motors, with the exception of that intended for airplanes, shall be marked with a written guarantee that the oil being sold equals or exceeds United States Government specifications (Class D) for motor lubricants.

Plaintiffs in the injunction suit include Atlantic Refining Co., Beacon Oil Co., Gulf Refining Co., Shell Eastern Petroleum Products, Inc., Sinclair Refining Co., Standard Oil Co. of New York, Sun Oil Co., Tide Water Oil Sales Co., Mexican Petroleum Corp. and Vacuum Oil Co.

WESTERN SALES REORGANIZED

Extension of the sales jurisdiction of The Texas Company, a California corporation, to include Montana, Idaho and Utah has just been announced by officials of that company.

Heretofore the jurisdiction of the California company had extended only to Washington, Oregon, California, Arizona and Nevada, the other three states, formerly known as the Butte district, having been under direction of The Texas Company of Delaware.

With the extension of the field of The Texas Company of California is recalled the fact that a year ago the manufacturers of Texaco products entered the Oregon territory following which they announced that their distribution facilities were available in every state in the union as well as in 46 foreign countries.

DE LONG MADE MANAGER

R. J. DeLong, formerly with the Pierce and Marland companies at St. Louis, has been made manager of the lubricating oils division of the sales department of the Louisiana Oil Refining Corp. at Shreveport, La. He succeeds F. J. Mechlin, who has been with the Louisiana corporation for the past five years, but resigned recently effective March 15 to devote his time to sales research work in the oil and chemical industries and in development of sales and patents owned by the Basic Patents Corp. of Shreveport.

MUST CHANGE NAME

PORTLAND, Me., Mar. 16.—The Standard Oil Co. of New York was awarded the decision against the Standard Oil Co. of Maine, Inc., in the United States District Court when Judge A. Peters issued a permanent injunction against the Maine company in doing business within the State unless it changed its name so as not to be confused with the New York concern. The Standard Oil Co. of Maine, Inc., was organized in Maine September 26, 1929.

KENTUCKY INDEPENDENT SELLS

COVINGTON, Ky., Mar. 13.—Stockholders of the Kentucky Independent Oil Co. Thursday here announced ratification of the proposal to sell the concern to the Shell Petroleum Corp. It was announced that the Kentucky firm possessed real estate and assets worth $1,000,000 and operated 32 filling stations.

OUTLINES PROGRESS MADE TO DATE ON OPERATION OF CODE OF ETHICS

By Paul E. Hadlick*
American Petroleum Institute

The National Code of Practices for Marketing Refined Petroleum is here to stay as long as the oil industry wants it to, or as long as the oil industry desires fair marketing practices. In fact, the trade practice conference, which already has been used in nearly 100 different industries in the United States, is undoubtedly here to stay. It will meet with temporary criticism from time to time but it will live because industry believes it basically sound.

The trade practice conference clarifies existing law into industry's own language or terms, putting such rules in Group 1 with an official statement that whether you sign the code or not to violate these Group 1 rules is an unfair trade practice, and therefore against the law. The trade practice conference goes further. It places in Group 2 a set of rules made and agreed upon by an industry with the approval of the Federal Trade Commission. The commission says these rules are considered good practice, and their adoption by the industry will tend to eliminate unfair competition and we, therefore, recommend and approve the industry's acceptance of them.

There was a time when many business men were afraid to belong to a trade association for fear of being connected with some activity that would be construed to violate the antitrust statutes. This time certainly is past for those industries that have held a trade practice conference under the auspices of the Federal Trade Commission. The zone of legal activities at least in that respect has been clarified and set down into so many rules that an industry or any group thereof may agree among themselves to abide by those rules—and do so without fear of criminal prosecution.

Idea Not New

Many people have for years thought of a code of marketing practices for the oil business—various groups in different states have attempted to promulgate them but without much effect. The reason for failure was not the lack of an ideal but because the oil industry is so linked together on a national basis that a workable, understandable code must be substantially uniform nationally. The metropolitan area fades into the suburb and the suburb into the country and thence to other cities and towns, other communities and states.

And why a code now rather than 10 years ago? What makes mankind organize political divisions and subdivisions of government? Common troubles, you will say. Yes, and it is the same with an industry. A common peril serves to unite people and once having discovered that they have similar interests, they continue to associate together. What makes an industry organize a trade association or adopt a code? In years past when business methods were more or less unscientific and direct competition almost unknown, there was no community of interest and hence no demand for associations or codes of practices.

Keen competition, with its accompanying abuses that creep in through lack of appropriate rules to be followed, confronted the marketing branch of the oil industry with the problem of doing something to help itself. The code was not designed to eliminate competition, nor to set a price, nor to get anyone to agree upon prices, but to set down in as plain language as possible a set of rules by which all might be guided.

*Delivered before the Pennsylvania Oil Men's Association in Philadelphia, Pa., March, 1930.

Most individuals who raise objection to the code do so because of some misunderstanding. Now and then I meet a man who condemns it in language not considered polite, and I have asked him if he followed a set of rules when he played cards. "Why, yes, of course," is the inevitable and immediate answer, to which I have stated, "Well, why can't you put your business on as high a plane as your card games?"

Accepted by 14,000 Companies

The code is being rapidly accepted nationally by large and small units in the oil industry. Over 14,000 companies have thus far placed signed acceptances to our code on file with the Federal Trade Commission. And the acceptances keep coming in every day.

Now the thing to be done is to see that all those who have signed an acceptance thoroughly understand the code. The best way I know of is by holding school. Large and small companies should gather their employes together in small groups and read the code through, rule by rule, with the official interpretations. Discussion should be had following such reading and notes made of any questions that cannot be readily answered. Such unanswered questions can be submitted to higher authority in the company or to the state code committee chairmen. It isn't too much to ask every employe to spend a couple of hours in this way—going back to school, if you like—for if the code is to be lived up to it must be thoroughly understood by the manpower of the industry.

The code should likewise be studied by those who have not accepted it. It is written in the language you understand. You who have signed the code should be active in seeing that the code is thoroughly explained and generally accepted. The code is going through a severe test right now and will be given a more thorough test pending the opening of the motoring season.

I have worked with and for the smaller companies for the past six years and I know their reactions. Most state organizations of marketers have for years been working in an effort to stabilize marketing conditions and encourage fair play. In fact, I know some state organizations that consider that as their prime reason for existing. Now, that being the case, I strongly urge the respective members of those associations to accept the code and get behind it 100 per cent. It is merely a help in carrying out the ideals upon which any effective state organization must be founded.

The initial interpretation and work of administering the code is left in the hands of the state code committees. The National Committee on Interpretation of the Code, of which I am secretary, makes decisions on doubtful or disputed points of interpretation, thus keeping the interpretations uniform throughout the country.

And don't leave all the hard work to the members of your state code committees; pitch in and help, for you must consider that the members of the state code committees are busy people the same as the rest of you. Let's not simply pass it off by saying: "Let George do it." Accept the code in spirit as well as letter and surely you will all better your conditions. It will not be a cure for all your troubles by far but it will tend to help stabilize matters, and will build up confidence between all members of the industry if you will only give it a fair trial.

GROWING EXPORT DEMAND FOR AMERICAN BURNERS

The growing importance of foreign markets as outlets for American fuel oil burners is revealed in a survey just made public by the Commerce Department. American export trade in this item, which is of comparatively recent origin, in 1929 reached a total value of $1,449,000, a figure which represented an increase of nearly 50 per cent over the corresponding figure for the preceding year. The largest gain, it is pointed out, has been in exports to the Eastern Hemisphere, which rose from a value of $310,075 in 1928, to $739,122 during 1929, accounting for some 88 per cent of the gain made in total exports.

Exports to almost all of the European countries showed substantial increases in 1929, a study of the report shows. Total shipments to Europe in that year had a value of $504,933 as compared with $205,669 in 1928. The largest gain in sales to any one country was to the United Kingdom, which in 1929 purchased oil burners and parts valued at $245,837, as compared with $111,356 worth in 1928. Increased sales were recorded in Sweden, France, Belgium and Soviet Russia in Europe. As the European countries increase in prosperity there should be a growing demand for central heating plants, the report declares.

In the Far East, sales to Japan showed a very decided gain, rising from $22,728 worth of American oil burners and parts in 1928 to $145,813 worth in 1929. Australia and New Zealand have proven to be fair markets for fuel oil burners, but exports of such equipment to those countries in 1929 showed no material gain. The climate there is mild, it is explained, and the demand is only for oil burners to be used in apartment houses, hotels, and stores, and the total number of such buildings in use or being built is not great.

CALIFORNIA'S FIRST PLANT

Standard Oil Co. of California will restore the old refinery in Railroad Canyon, built in 1875, the first refinery constructed in California so far as authentic history goes. Some of the ruins remain, and they will be cleaned, parts rebuilt and the plant reconstructed as much like the original model as possible. The plant and the surrounding ground will then be fenced in and made into a park. Visitors thus will be afforded an opportunity to see what early refining was like, and one of the most interesting of historical relics will be kept for the future.

TEST ALUMINUM TANKS

NEW YORK, Mar. 15.—Members of the subcommittee on testing of aluminum alloy for truck tanks, meeting at American Petroleum Institute headquarters, discussed tests to be made in co-operation with a subcommittee of the National Fire Protection Association and agreed upon a tentative program. It will be prepared under direction of Chairman J. F. Winchester, Standard Oil Co. of New Jersey, New York, and submitted to the association.

TO HOLD A BRIDGE PARTY

CHICAGO, Mar. 15.—The Chicago Oil Men's Club is to hold a bridge party at the Auditorium Hotel on the afternoon of Thursday, March 27. All local oil men will be welcome. While not so stated, it is quietly surmised that the object of the party is to win from John Carson the trophy which he won as the best bridge player at the Spencer Petroleum Co.'s Valentine party.

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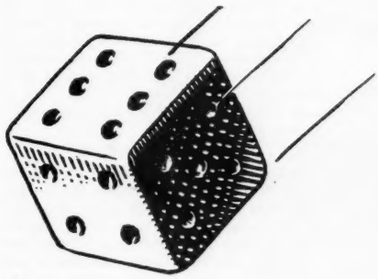

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DODGE TRUCKS

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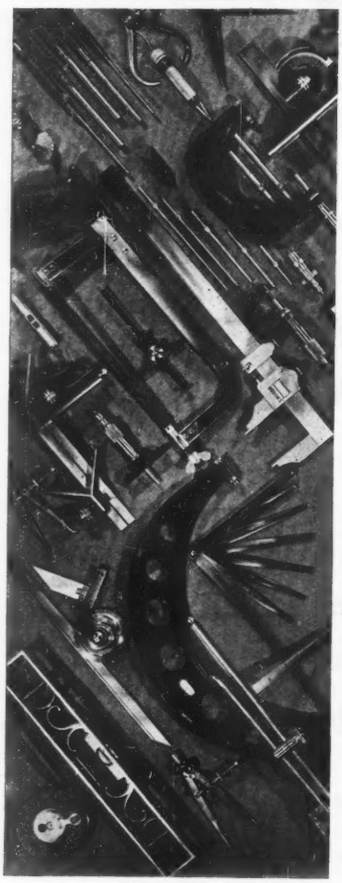

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EASTERN FIELDS

(Continued from Page 84)

well has been transferred to the United Fuel Gas Co. and that company will give it a shot in the Big Lime formation and hope to get a gasser.

Cabell County

In Grant district, Cabell County, the Harshbarger Oil & Gas Co. has a 1,000,000-foot gasser in the Brown shale on the Hubert Hatfield farm. In the same district, the Hamilton Gas Co. has a fair gasser at No. 6 on the Mary Beckett farm. There is more work under way in Cabell County than for a number of months.

In the Briscoe Field, Williams district, Wood County, Boggs & Bartlett completed a test on the Abram Johnson farm. It found no oil in the Big Injun sand, but is a gasser good for 500,000 feet.

In Curtis district, Roane County, the United Fuel Gas Co. drilled a test on the M. Hart farm into the Cow Run sand. It got a fair show of oil in this formation but will be drilled to the lower sands before testing in the Cow Run.

In DeKalb district, Gilmer County, the South Penn Oil Co. gave its No. 4, on the John Lewis farm, a shot, increasing its production from 8 to 50 bbls. a day. Shooting and cleaning old wells is quite a feature in some districts. There is more effort made to get an increase in production by this method than drilling new wells.

Drilling and Starting New Work

In Ellsworth district, Tyler County, the Reno Oil Co. has shut down on the D. H. Tallman farm. In the same district, the Wardin Drilling Co. is due in the Big Injun sand on the F. M. Travis farm. In Meade district, Morgan Brothers are rigging up on the J. B. Dancer farm. In Grant district, Doddridge County, the Hope Construction & Refining Co. is due in the Big Injun sand at a second test on the T. P. Spencer farm. In McClellan district, the Little Five Oil Co. has a rig up on the Isaac Riffee farm for a second test. In Logan district, Logan County, the Clendenin Gas Co. is drilling at 5,410 feet on the Boone County Coal Corp.'s property. In Falls district, Fayette County, W. J. Patterson is drilling on the E. N. Newman heirs' farm. In Town district, Raleigh County, G. L. Cabot has made a location on the McKinley Land Co.'s tract. This is a second test on this tract, the first being a dry hole.

In Geary district, Roane County, the United Fuel Gas Co. has made a location on the Preston Hemlick farm. In the same district, I. L. Storts & Co. have started to drill on the G. O. Surface farm. In the same district, the United Fuel Gas Co. is rigging up on the W. L. Deverick farm. In the same district the Fred Oil & Gas Co. has started to drill on the A. T. Ferrell farm. In Spencer district, Paul Weekly & Co. have part of the rig material on the J. A. Epling farm. In Reedy district, the Heck Oil Co. is drilling on the J. E. and J. B. Watkins farm. The same company has rig material on the Rebecca Kincaid farm. In Ravenwood district, Jackson County, the same company has made a location on the B. A. Shafer farm.

New Work in Calhoun County

New work in Calhoun and Roane Counties features the West Virginia fields. In Sherman district, Calhoun County, L. P. Bickel has started to drill on the J. G. West farm. In Center district, the Hope Construction & Refining Co. is rigging up on the C. T. Hosey farm. In the same district, W. H. Bickel has made a location on the John D. Collins farm. In Sheridan district, the Chemical Oil Co. has a rig up on the A. T. Yoke farm.

In DeKalb district, Gilmer County, F. G. Davis is rigging up on the Alva G. Hardman farm. In Murphy district, Ritchie County, A. H. Jackson has started to drill on the Addison Riddle farm. In Sherman district, Boone County, the Owens Bottle & Machine Co. has a rig up on the Peytonia Coal & Land Co.'s tract. In Geary district, Roane County, Godfrey C. Cabot has a rig completed on the John Smith farm. In Henry district, Clay County, the Virginian Gasoline & Oil Co. has made the location for No. 4,235 on the R. M. Summers farm. In Hardee district, Mingo County, the Kermit Gas Co. has started to drill on the George R. C. Miles farm. In the same district, William P. Floyd has started to drill a second test on the C. C. Messer farm. In Kanawha district, Fayette County, Grosscup and Schultz are drilling one and mode locations for three more on the Black Betsy Coal Co.'s property. On Poplar Branch of Leatherwood Creek, Big Sandy district, Kanawha County, the United Fuel Gas Co. has the rig completed for No. 4,026 on the King Land Co.'s property.

RESIDUE GAS INCREASES DUST DIFFICULTY

(Continued from Page 100)

gas wells may give practically no trouble from liquids in their early life, but as rock pressures are lowered by continued depletion, water will start to penetrate the sand and in time it will be necessary to give constant attention to drying the gas.

Shale gas, invariably, is produced with water which seems to be an integral part of the shale formation. Elimination of the water is done above the ground at the well connections through automatic drips that continue to function without much attention as long as weather permits. These drips usually return the water to the bottom of the hole as fast as it is collected. The chief operating problem is in keeping the connections from freezing during frigid weather. Pipe line drips are necessary on all lines carrying this type of gas and once the water is eliminated, the consumer receives a satisfactory quality of gas.

Left Over Gas Wasted

About 15 years ago, oil producers began to utilize gas coming from oil sands containing gasoline vapors for the purpose of extracting the gasoline content. The left over gas was not considered valuable and was allowed to blow off to the air. Gas pipe line companies advocated its conservation and in the Mid-Continent Field the first connections were to gasoline plants in the Burbank district, Osage County, Oklahoma. Royalties to the Indians were on the basis of dry gas from their lands and with the necessity of pumping, building pipe lines and establishing markets capable of consuming the gas as it was available, high initial costs were immediately assumed.

Residue gas leaving gasoline plants, would contain small amounts of carbon dioxide, light gasolines, oxygen and water vapors, which would condense after leaving the compressors. Water by itself will not cause extensive corrosion; neither will oxygen by itself. A combination of the two, assisted by carbon dioxide or light gasoline vapors in the gas flow was causing internal corrosion. Thus, as a result of handling residue gas in large quantities through natural gas transmission lines, modern methods of cleaning the gas and eliminating products of corrosion developed. Continued corrosion would soon develop flakes and the velocity of the gas would move the flakes through the pipe. In time, a very fine powder or dust would develop seeking a place to stop. Many companies did not give consideration to the burden of dust troubles until they became so severe that something extraordinary was necessary to alleviate the troubles.

Troubles Start Investigation

The first studies made of the situation resulted from the extreme amount of trouble experienced at compressor stations. Dust was wearing compressor rings, liners in compressor cylinders, and ring slots in compressor pistons. Rod packing was being worn allowing leakage, which was an item in itself, and in general, all working parts which came in contact with the gas containing the fine dust were being affected and their remaining life shortened. The shut-downs which were caused by the dust condition and the leakage of gas through worn portions was an item very difficult to figure in dollars and cents. Along the transmission lines regulators were giving trouble, seats on valves would not hold, and every mechanical piece of equipment having moving parts, demanded additional attention over normal operating conditions. In distributing centers the first complaints came from consumers using automatic equipment. Pilot lights would often be extinguished, spuds on domestic appliances were becoming stopped up with the dust, radiants were discolored and these many complaints were causing considerable expense to distributing companies.

It was absolutely necessary to cure the cause and take care of the effect. Locations of troubles were not general and only appeared on portions of the pipe line system carrying residue gas. The first work done was to develop a method of catching the dust already formed. The Cities Service Gas Co. did considerable work resulting in the development of an effective dust scrubber. The final design was very simple with a comparatively low operating cost.

Steel Cylinder Used

A steel cylinder is used varying in size from 24 inches to 60 inches in diameter and from 8 to 16 feet in height depending on the quantities of gas to be handled. The cylinder is placed in a vertical position and gas is injected through a horizontal pipe which has outlets through vertical legs extending downward to a point nearly touching a body of mineral seal or other suitable type of oil. Above the horizontal inlet pipe a partition is installed in the cylinder in such a way that all gas must pass into the upper chamber through nozzles set at a tangent.

From the top of the cylinder a screen is inserted in a vertical position on a rod, as a guide, extending downward to about 12 inches above the partition plate. Ordinary fly screen wire is wrapped 18 to 21 times around a perforated metal cylinder through which the gas passes on to the pipe line. A loose plate on the bottom of the screen acts as a safety device in case of the screen clogging and stopping the flow of gas.

The churning action of the oil caused by the inlet gas pressure breaks up the oil into a fine mist. This mist tends to knock down the dust particles that may enter with the gas and as the fine mist or spray passes through the nozzles into the upper chamber, a swirling action throws most of the dust laden oil against the side walls. As it collects on the floor of the upper partition it is carried by down pipes to the lower chamber at a point where it is submerged by the body of oil. The balance of the oil which does not collect on the side walls of the upper chamber will collect on the screen tending to wash it down.

Blown Into Sludge Tank

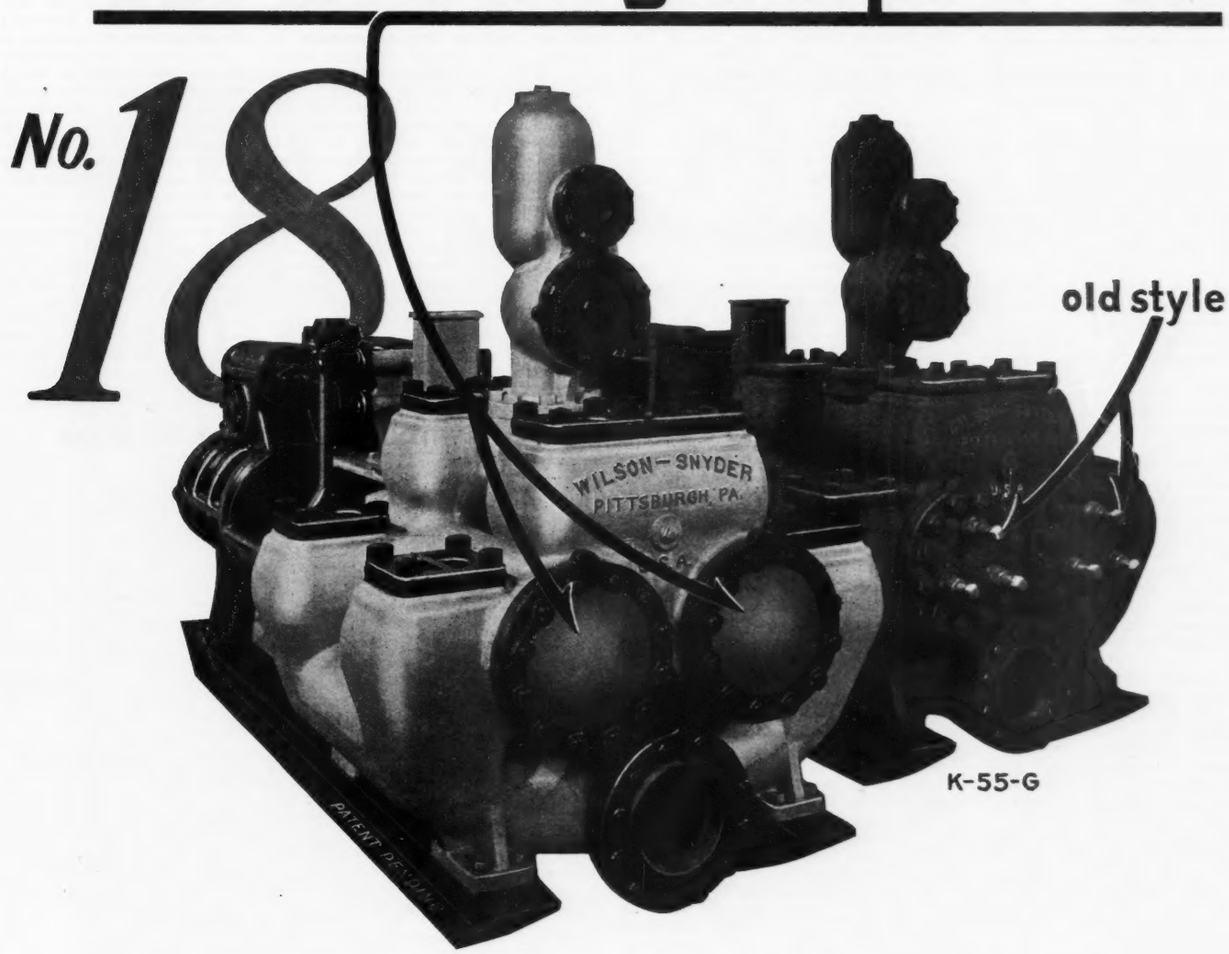
When cleaning the scrubber, it is taken out of service and the dust laden oil from the bottom of the chamber is blown into a sludge tank, setting on a platform near the separator, where it is allowed to settle. From this sludge tank, the cleaned oil is allowed to flow into the lower sludge tank sitting on the ground level from which it is pumped by hand to a charging tank before re-injecting into the cylinder for further use.

In constructing separators or scrubbers, it is necessary to arrange proper bypasses to allow for cleaning and inspection.

The first scrubber installed was located at Eldorado, Kans. Since then, 15 installations have been made by the Cities Service Gas Co. Scrubbers are placed ahead of all principal compressor stations and at certain town borders where dust has given trouble in the distribution system. Many other pipe line companies have experienced dust troubles and have made their own experiments with mechanical means to catch dust. Scrubbers of similar type or embodying the general principles of the Empire scrubbers have been constructed by other gas companies and it is my understanding that one or two firms are manufacturing scrubbers ready for installation.

As a result of scrubbers already installed, we have eliminated practically all of the trouble formerly experienced from

Constantly Improved



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dust and believe that the majority of dust in the pipe lines has been collected. Increasing the velocity of gas or changing its flow may loosen up dust which would give considerable trouble if dust scrubbers were not available.

Eliminating the Causes

To eliminate the principal cause of dust formation, it was necessary to find means of drying the gas thereby eliminating all vapors and other elements causing the corrosion. This can best be brought about by:

1. Avoiding taking residue gas if other things are equal.
2. If necessary to take residue gas, it should come through absorption plants to eliminate as much as possible carbon dioxide and gasoline fractions.
3. After coolers at compressor stations should be run as cold as possible.
4. Dust scrubbers should be placed in front of all compressor stations and all towns regulating stations.
5. Oxygen content of the residue gas should be checked and kept as low as possible.
6. Gas lines leaving compressor stations should be carefully dripped in a zone of from 2 to 12 miles.

Gas taken into transmission lines from residue plants has caused operators considerable trouble at certain times of the year due to freezing. It has been necessary to develop means of meeting conditions that may appear in a pipe line during a freeze-up which may be at a low point, on a hillside or at some unsuspecting place at any time during thawing weather conditions. Freeze-ups usually occur where gasoline vapor is suspended in the gas either from wet wells or residue plants.

There is no exact science of freeze-ups, therefore, they are very troublesome. However, most troubles occur in field lines before the gas gets into the main lines. Pressure observations usually indicate a freeze-up is starting or is completely obstructing the line. We believe that a freeze-up near a residue plant may be started by a very small particle of vapor fluid attaching itself to a slight obstruction in the pipe, maybe a nib from a pipe weld, and as the flow of gas continues with vapor laden particles, the obstruction will grow until it either completely stops the line or causes a decided decrease in the flow of gas.

Prompt Action Important

If it is possible to catch a freeze-up before it has gone too far, it may be overcome by quick action and giving immediate attention to it. Various methods are employed to dislodge the obstruction or dissipate it. It may be dislodged by releasing line pressures, heating the pipe or giving the freeze-up an alcohol physic. Alcohol has proved very effective in many cases. If the portion of ice is dislodged, it may be blown out at drips.

Complete freeze-ups are practically impossible to locate except by a minute investigation and taking of pressures along the line. If alcohol or releasing of pressure will not dislodge or thaw the ice, it is sometimes necessary to shut in the line for several hours. Trouble of this nature can be avoided by constantly watching the condition of gas as it leaves plants and blowing drips regularly.

Some operators prefer to install siphon drips on low places along field lines. This type of drip should not be installed in lines carrying residue gas for the reason that they offer obstructions and usually fail in getting all water out of a low place.

Laying lines from residue plants should be done with great care and if possible they should be constructed to grade to avoid gathering places for moisture or liquids.

When pipe lines are laid in field or city they should be carefully inspected for internal corrosion or other obstructions. Cases have been known where old oil lines have been reclaimed, carefully swabbed out and placed in service for the transportation of gas. Ordinary swabbing may prove satisfactory except where high pressures are used.

The high velocity of gas will clean off paraffin and push it through the line to some point where it will start to roll up and act as a complete obstruction. In other cases, it may cause serious trouble in line pressure or fluctuation of pressure in such manner as to impair satisfactory service. When such a condition develops, the line should be completely blown and properly tested to see that no further obstructions are possible to cause interruptions or trouble in pressure.

On a section of a 20-inch line, it was found necessary to install a compressor station to increase the capacity of the pipe line. Gas flowing through this line was known to be dry gas and no trouble had been experienced at the inlet compressor station or the outlet compressor station hundreds of miles away. After this intermediate station was installed, a dust condition developed which began to give as much trouble as experienced elsewhere from internal corrosion dust. The particular difficulty in this case seemed to be in the lubrication. The dust was mixing with the regular lubricating oil, producing a cutting action on liner, piston and rings. The dust could not be accounted for except from an insufficient cleaning of the pipe at the time of installation. The pressure of the gas and the velocity of flow at the point of installation was changed to such an extent that it was believed sand and dirt allowed to stand in the pipe line at the time of construction, was being stirred up and was causing the trouble. A dust scrubber was constructed at this station and no further trouble resulted.

Second Lubricating Difficulty

A second lubricating difficulty developed from gasoline content present in the gas, cutting the regular lubricating oil within the compressor cylinders resulting in excessive wear on liners, pistons and rings. By substituting a special lubricating oil containing a 25 per cent castor oil blend, no further difficulty was experienced.

While the first serious dust trouble affected the consumers and caused much uneasiness in distribution centers, the greatest expense and trouble has been along the main line. However, the distribution man has had plenty of trouble with his system when he has changed from artificial gas to manufactured gas or from mixed gas to straight natural gas. An article appeared some time ago in one of the gas magazines relating to the trouble experienced in the distribution system of a western city. Mixed gas had been handled through the system for several years. Moisture and oxygen were present in the mixed gas. Corrosion had developed internally but introduction of natural gas which was much drier had caused the corrosion to become loosened and during peak loads when the gas was traveling at high speed, there were many complaints. A dust trap was devised and was installed at various points, particularly at district regulating stations near the points giving the most trouble. It was found that as soon as the scrubbers were in operation, the number of complaints diminished at once. If dust was collected rapidly, it tended to decrease the efficiency of the system and complaints increased accordingly. The company found that from an earning and public relation standpoint the dust scrubbers were very practical and profitable.

Low Leakage Insured

Manufactured gas contains enough moisture and tar products to insure low leakage through calked joints. The introduction of natural gas which contains no moisture, does not allow the hydrostatic action of jute fibers to continue, and a drying out process will soon permit the escape of gas and development of high leakage. Some companies, to overcome this situation introduce steam mixed with oil into the gas flow to prevent development of leakage through the calked joints.

Natural gas is inherently a dry gas and the introduction of any element or any operation that will allow water vapor or a small portion of air to be injected will soon cause internal corrosion and dust trouble. It is therefore imperative that the transmission company, in handling gas, provide mechanical means for eliminating all injurious substances. Proper equipment must not only be installed to take care of troubles already started but we should continue to educate the gasoline men and also the gas producer, regarding the injurious effect of carelessly handling these products.

In some sections of the country, natural gas contains varying amounts of sulphur. Used through domestic appliances, it discolors various objects, has a disagreeable odor and in general is not acceptable. For general commercial use, the sulphur content must be removed and companies meet this condition by desulphurizing the gas through plants constructed for the purpose.

"Merchantable Gas" Clauses

Natural gas purchase contracts should include adequate "merchantable gas" clauses. Transmission companies not only have an investment to protect against injurious action from oxygen, carbon dioxide or other corrosive agents but must continue to deliver a product to the consumer of the highest quality. Limitations as to the amount of hydrogen sulphide, sulphur dioxide or other inert or injurious gases should be clearly defined in each purchase contract. Proper protection clauses of this nature enable transmission companies to control the quality of their supply and at any time allow them to cut off or reduce takes from areas or gasoline plants producing inferior or injurious gases.

The gasoline consumer driving up to a filling station observes the quantity of gasoline he is about to purchase as displayed in a clean container, showing that no injurious particles are suspended in his gasoline, and the gasoline distributor has taught him to expect such service. The housewife purchases her equipment for gas utilization purposes on the representation of the new business man that she is buying a modern appliance which would befit her parlor and is encouraged to believe that everything about the use of natural gas will do away with drudgery and dirt. Surely the product must be clean from the start or the new business man cannot tell a truthful story and much trouble and expense will be experienced along the line.

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 52)

E. N. Morgan's No. 1 Whithair, NW SE Sec. 9-12-1 ....Shut down 1,325 ft.

DOUGLAS COUNTY

Steinbuckel's No. 1 Unknown, SW NE NW Sec. 34-14-21..Drlg. 620 ft.
Jenkins & Scott's No. 1 Haden, SE NW Sec. 10-12-17 ....Shut down 550 ft.

EDWARDS COUNTY

Skelly's No. 1 Johnson, NE SW Sec. 21-26-17w .....Drlg. 4,515 ft.
Barnsdall Oil's No. 1 McCarty, NW NE Sec. 31-25-17w..Straightreaming 4,130 ft.
Dixie & Amerada's No. 1 McCarty, SW cor. Sec. 22-25-17w .....Drlg. 4,182 ft.

ELK COUNTY

H. F. Fleming's No. 1 Shered, NW cor. Sec. 16-29-9 ....Drlg. 2,000 ft.
Empire and Arkansas Fuel's No. 1 Record, C NW NE SE Sec. 32-30-10 .....P. B. to 1,270-1,300 ft.; cementing csg.; shot 60 qts. and abandoned.

ELLIS COUNTY

Central Commercial Oil Co.'s No. 1 Helms, SE cor. NE Sec. 2-12-20w .....Rig.
Streeter & Stearns' No. 1 Leiker, SW NE Sec. 26-13-20w..Shut down 1,290 ft.
Byrene et al's No. 1 Fisher, NW SE Sec. 4-11-20w ....Shut down 1,000 ft.
Rush Oil Co.'s No. 1 Gatewood, NW cor. NW Sec. 4-15-20w .....Fishing 2,765 ft.

ELLSWORTH COUNTY

Tatlock et al's No. 1 Sackem, C SW SE Sec. 25-17-9w ..Shut down 3,228 ft.

FORD COUNTY

McNabb et al's No. 1 Fowler, C SE Sec. 26-27-22w ....Shut down 400 ft.
Swain et al's No. 1 Kenthorne, C NW Sec. 21-25-24w ..Shut down 845 ft.

GRAHAM COUNTY

Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w..Shut down 4,340 ft.
Naylor et al's No. 1 St. John, NW SE SE Sec. 27-8-25w ..Rig.

GREENWOOD COUNTY

Morrowery's No. 1 Denchfield, SE NW Sec. 12-27-9 ....Spudding.
Bundy, Smith & O'Neil's No. 1 Ford, NE NW Sec. 28-25-13 .....Spudding.
F. Konkay et al's No. 1 Rock, NW NE NE Sec. 7-27-12..Shut down 985 ft.

HARPER COUNTY

Beeler et al's No. 1 Bear, C NE Sec. 21-31-6w .....Shut down 1,830 ft.

HARVEY COUNTY

Superior's No. 1 Regier, SE NW Sec. 11-22-3w .....Abandoned 3,680-3,727 ft.; water; T. D. 3,752 ft.
Liggett et al's No. 1 Regier, C SE NW SE Sec. 2-23-3w..Drlg. 3,693 ft.
Mrs. Gay et al's No. 1 Grove, C NW NE NW Sec. 29-23-1w .....Cleaning out 3,360 ft.

HODGEMAN COUNTY

Phillips Pet.'s No. 1 Hausman, NW NE Sec. 30-22-22w ..Shut down 5,034 ft.

LYONS COUNTY

Sheedy et al's No. 1 Evers, C NE SE NE Sec. 4-21-10....Drlg. 1,285 ft.
Sheedy et al's No. 1 Reese, SW SE Sec. 16-20-10 .....Shut down 2,401 ft.

MARION COUNTY

Empire O. & R. Co.'s No. 1 Black, C NE NW SW Sec. 27-19-2 .....Viola 2,995-3,002 ft.; water; T. D. 3,035 ft.; abandoned.
Marshall et al's No. 1 Higgins, NE cor. Sec. 33-19-5 ....Rig.

MARSHALL COUNTY

Brazier et al's No. 1 Runkel, SE NW Sec. 13-2-6 .....Rig.

McPHERSON COUNTY

Galt-Brown et al's No. 1 Zeitlow, C NE SE SE Sec. 7-17-1w .....Cleaning out 2,020 ft.
Dixie Oil Co.'s No. 1 Johnson, SW cor. Sec. 20-17-3w ....Drlg. 3,385 ft.
McCulloch Oil Co.'s No. 1 Cornelius, SW cor. Sec. 7-21-4..Water 4,002-05 ft.; shut down.
Kansas Oil Co.'s No. 1 Otto, SW NW Sec. 21-20-1w ....Drlg. 3,505 ft.
Milmac's No. 1 Decker, NW cor. Sec. 11-20-3w .....Fishing 1,472 ft.

MORTON COUNTY

Mangle et al's No. 1 Youngren, C SE NW Sec. 24-32-42..Spudded; shut down.

MORRIS COUNTY

Urschell et al's No. 1 Scott, NE NW Sec. 6-16-6 .....Drlg. 2,115 ft.

NESS COUNTY

Clark's No. 1 Vaughn, SE SW Sec. 28-17-22w .....Spudding.

NORTON COUNTY

Richards et al's No. 1 Colby, Sec. 17-4-21w .....Rig.

PAWNEE COUNTY

Prairie O. & G. Co.'s No. 1 Black, SW NE NE Sec. 11-20-18w .....Drlg. 3,866 ft.

PRATT COUNTY

O'Haver & Jones' No. 1 Garacke, C NE SW Sec. 7-26-14w .....Drlg. 4,287 ft.
Wilcox O. & G. Co.'s No. 1 Bappin, SW NW Sec. 7-26-15w .....Fishing 2,785 ft.

RENO COUNTY

C. A. Cheney and M. M. Valerius' No. 1 Stevens, C NE SE NE Sec. 6-26-7w .....Drlg. 520 ft.
Wilcox O. & G. Co.'s No. 1 McPheeters, SW NW Sec. 22-26-8w .....Shut down 3,940 ft.
Witt's No. 1 Olsen, C SE NW Sec. 14-22-6w .....Shut down 3,565 ft.
Skelly Oil Co.'s No. 1 Birkett, NE NW Sec. 30-24-7w ....Wilcox sand 4,172-96 ft.; water; shut down; total depth 4,247 ft.

RICE COUNTY

Tatlock et al's No. 1 Ploog, C SW SE Sec. 33-18-9w ....Rig.
Burgher's No. 1 Fair, C SE NE NE Sec. 14-21-10w ....Drlg. 2,868 ft.
Derby Oil Co.'s No. 1 Johnson, C NW NE SE Sec. 24-20-6w .....Drlg. 3,570 ft.
Danciger et al's No. 1 Bell, C SW Sec. 16-19-8w .....Shut down 3,175 ft.
McCullough et al's No. 1 Williams, C NE Sec. 35-20-8w..Drlg. 820 ft.

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RILEY COUNTY

Grey et al's No. 1 Smith, NE SE Sec. 30-6-6 .....Shut down 1,970 ft.
Derby & Shaw's No. 1 Lindstrom, NE cor. Sec. 32-7-5e ..Shut down 2,245 ft.

ROOKS COUNTY

A. H. Kruger's No. 1 Steis, NW SE SW Sec. 12-9-16w...Shut down 570 ft.

RUSH COUNTY

Danciger Oil & Refining Co.'s No. 1 Nave, NW cor. Sec. 26-17-17w .....Total depth 3,606 ft.; shut down.
Millmac's No. 1 Mohr, C NW Sec. 11-18-16w .....Drlg. 3,095 ft.

RUSSELL COUNTY

Gilbreath et al's No. 1 Bratton, C NE Sec. 33-11-13w ....Drlg. 485 ft.

SEDGWICK COUNTY

T. C. Johnson's No. 1 Petrie, SW SE Sec. 35-26-1w ....Location.
Tavender et al's No. 1 McLean, SE SW SE Sec. 23-26-1w .....Drlg. 625 ft.
McCullough Oil Co.'s No. 1 Buckles, NW cor. SE Sec. 3-28-1w .....Shut down 1,115 ft.

SHAWNEE COUNTY

Jenkins & Scott's No. 1 Sherman, NW NE Sec. 28-10-15 .....Shut down 985 ft.
Jenkins & Scott's No. 1 Haden, NE SE Sec. 8-12-14 ...Drlg. 1,040 ft.

SHERIDAN COUNTY

Mandalin O. & G. Co.'s No. 1 Unknown, C SE SW SW Sec. 27-7-26w .....Spudded; shut down.

STAFFORD COUNTY

Gibson's No. 1 Mueller, C SW Sec. 11-23-14w .....Fishing 3,765 ft.

STEVENS COUNTY

Argus Oil Co.'s No. 1 Armstrong, CNL S half NW Sec. 16-34-39w .....Rig.
Argus Oil Co.'s No. 1 Parker, C SW Sec. 19-34-36w ....Drlg. 720 ft.
Argus Oil Co.'s No. 1 Smith, C SW Sec. 13-33-37w .....Drlg. 1,100 ft.
McNabb et al's No. 1 Ramey, C SW Sec. 1-33-38w .....Drlg. 1,700 ft.
Argus Gas Co.'s No. 1 Hobbe, C SE Sec. 17-32-37w .....Fishing 2,625 ft.
W. Sidwell et al's No. 1 Kelly, SW cor. NE Sec. 16-34-38w .....Shut down 1,600 ft.

SUMNER COUNTY

Hatfield's No. 1 Dauber, NE cor. Sec. 18-30-1w .....Shut down 50 ft.
Slick et al's No. 1 Peasel, NW cor. Sec. 33-31-1w .....Chat 3,651 ft.; drilled to 3,668 ft.; pinched to 75 bbls. a day.
Lario O. & G. Co.'s No. 1 Osborne, NE SE Sec. 21-30-1w .....Chat 3,590-3,605 ft.; Silicious 4,-005 ft.; water; shut down.
E. K. Carey and Laredo Oil Co.'s No. 1 Welsch, SW SE Sec. 9-34-1e .....Drlg. 3,835 ft.
Davidson et al's No. 1 Strickland, SW cor. SE Sec. 12-35-1w .....Rig.

TREGO COUNTY

Dixie and Amerada's No. 1 Reitmayer, C NE NE Sec. 19-14-21w .....Drlg. 3,428 ft.
Prairie Oil & Gas Co.'s No. 1 Kutina, C NE SW NE Sec. 29-15-21w .....Shut down 4,383-84 ft.; water.
Day et al's No. 1 Gugler, SW NE NE Sec. 36-12-21w ..Shut down 50 ft.
Day et al's No. 1 Unknown, NE NW SW Sec. 2-11-21w..Drlg. 3,865 ft.

WOODSON COUNTY

Derby & Spencer's No. 1 Kingon, CNL SE NW Sec. 29-23-15 .....Rig.
Oko Oil Co.'s No. 1 Hougland, SW NE NE Sec. 2-24-14 ..Shut down 1,603 ft.

WILDCAT OPERATIONS IN NEBRASKA

FRANKLIN COUNTY

U. R. Drlg. Co.'s No. 1 Brunkle (twin well), C NW SW NE Sec. 2-3n-13w .....Rig.

CHASE COUNTY

Chase Pet. Co.'s No. 1 Ingold, C NE Sec. 24-6n-38w ....U.R. 5-in. csg.; T.D. 4,265 ft.

FURNAS COUNTY

Southwestern Pet. Corp. of Nebraska's No. 1 Montague, SE SW SW Sec. 28-1n-22w .....Shut down 1,750 ft.
Graham Bros.' No. 1 Edwards, NW SW Sec. 13-2n-22w ..Shut down 3,250 ft.

RICHARDSON COUNTY

Norton et al's No. 1 Hauser, NE cor. Sec. 26-1-14 .....Location.

ROCK COUNTY

North Central Dev. & Drlg. Co.'s No. 1 Leonard, SE cor. NE Sec. 14-32-18w .....Drlg. 900 ft.

WEBSTER COUNTY

Mid-Kansas Exploration Co.'s No. 1 Platt, C SE one-half Sec. 3-1n-11w .....Shut down 555 ft.

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 50)

Continental and Barnsdall's No. 1 Brown, CNL SW. Sec. 10-20-4w .....Drlg. 5,420 ft.
E. L. Love et al's No. 1 White, SE cor. NW, Sec. 9-24-6w .....**Shut down 5,566 ft.**

GRADY COUNTY

J. V. Bailey's No. 1 Hubbard, C NE NW, Sec. 1-10-6w..Shut down 100 ft.
J. M. Henry et al's No. 1 Abraham, SE cor. NW, Sec. 4-5-8w .....Rig.

GRANT COUNTY

Gypsy Oil Co.'s No. 1 Belderbeck, C SE SE, Sec. 27-28-7w. Wilcox 5,647 ft.; drlg. 5,811 ft.
Baucher et al's No. 1 Deadman, SW SE, Sec. 12-28-4w..Fishing 4,737 ft.
Cowden et al's No. 2 Vollmer, CEL NE SW, Sec. 22-25-4w. Shut down 5,640 ft.
Otstot's No. 1 Tabor, C NE NE SE, Sec. 23-26-3w.....Drlg. 4,165 ft.

GARVIN COUNTY

Nelson et al's No. 1 Strickland, NE SW, Sec. 10-4-3.....Drlg. 320 ft.
Pickham-Harris' No. 1 Community Gaines, C NW NE, Sec. 11-4-1 .....Drlg. 3,345 ft.

GREER COUNTY

Helmerich & Payne's No. 1 Henck, NW cor. Sec. 23-6-24w .....Fishing 2,240 ft.
I. T. I. O. et al's No. 1 Fee, C SW NE, Sec. 17-6-24w.....Shut down 2,100 ft.

HARMON COUNTY

Harmon-Tex Oil Co.'s No. 1 Hoadley, NE cor., Sec. 17-4-24w .....Shut down 715 ft.
S. M. Stauffer's No. 1 Castleman, SW NE, Sec. 8-4-26w..Shut down 625 ft.

HARPER COUNTY

Empire's No. 1 Bruce, C NE SW, Sec. 12-25-20w.....Spudding.
Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW, Sec. 14-26-24w .....Drlg. 7,561 ft.; 6⅝-inch csg.

HASKELL COUNTY

Mid-Western's No. 1 Posester, C NE SE, Sec. 32-10-22..Drlg. 600 ft.
Holden's No. 1 Phillip, SE cor. Sec. 3-9-18e .....Shut down 1,860 ft.
Marion Oil's No. 1 Sanders, NW NE SW, Sec. 10-9-18e..Shut down 2,387 ft.
Sanboise Gas' No. 1 Unknown, SW NW SE, Sec. 32-9-21e..Shut down 2,100 ft.

HUGHES COUNTY

Wright et al's No. 1 Ott, SE SW, Sec. 15-5-11.....Rig.
Canady et al's No. 1 Kanard, NW SW, Sec. 29-9-12.....1,000,000 ft. gas 2,284-90 ft.; total depth 2,815 ft.; shut down.
Irwin et al's No. 1 Jones, SE NW, Sec. 30-5-10.....Spudding.

KAY COUNTY

Skelly and Empire's No. 1 Maple, SW cor., Sec. 20-27-4..Drlg. 1,503 ft.

KINGFISHER COUNTY

Superior Oil Co.'s No. 1 Story, SE cor., Sec. 25-19-5w....Fishing 6,285 ft.
Galt Brown's No. 1 Wolf, NW SE, Sec. 6-16-7w.....Shut down 6,015 ft.

KIOWA COUNTY

Merrick Oil Co.'s No. 1 Kelly, NW cor. SE, Sec. 20-7-17w. Shut down 1,525 ft.

LEFLORE COUNTY

Red Bank Oil Co.'s No. 1 Fee, SE SW NW, Sec. 23-9-24..Total depth 5,440 ft.; 15,000,000 ft. gas; fishing 5,438 ft.

LATTIMER COUNTY

Limestone O. & G. Co.'s No. 1 Shaw, NW cor. NE NW, Sec. 23-5-18e .....Drlg. 1,890 ft.

LINCOLN COUNTY

Tom Slick Oil Co.'s No. 1 Hammer, SE NW NW Sec. 35-16-2 .....Rig.

LOGAN COUNTY

Currier's No. 1 Young, C SW NE SW, Sec. 34-17-4w....Rig.
Haley & Smith's No. 1 Guier, SE cor. SW, Sec. 33-18-3w. Shut down 3,970 ft.

McCLAIN COUNTY

Sunray Oil's No. 1 Newsome, C SE NE NE, Sec. 16-5-3..Wilcox 3,995-4,015 ft.; 3,000 ft. fluid in the hole.

McINTOSH COUNTY

T. C. Young's No. 1 Derrison, Sec. 3-12-15 .....Shut down 1,275 ft.
Jennings Brothers' No. 1 Crabtree, NW SW NE, Sec. 31-10-14 .....Drlg. 4,714 ft.
Patterson et al's No. 1 Smith, SW cor. NW SE, Sec. 32-9-16 .....Shot 240 qts. 5,446-5,559 ft.; shot went off up hole; fishing.

MUSKOGEE COUNTY

Sioux Oil Co.'s No. 1 Unknown, NW SE, Sec. 21-11-19..Shut down 1,011 ft.

NOBLE COUNTY

Gypsy Oil Co.'s No. 1 Bergstrom, SE NE, Sec. 28-22-1w..Drlg. 2,078 ft.
Peerless et al's No. 1 Wentz, NW SW, Sec. 22-22-1.....Drlg. 3,279-3,310 ft.; flowed 110 bbls.

OKFUSKEE COUNTY

Irwin et al's No. 1 Davis, SE NW, Sec. 16-13-9.....Drlg. 1,425 ft.
Henry Oil Co.'s No. 1 Harjo, Sec. 36-12-9.....Shut down 2,795 ft.
E. L. Robinson's No. 1 Rice, NW, Sec. 2-10-9.....Location.
Shepard et al's No. 1 Neveas, SE NW SW, Sec. 3-12-10..Shut down 3,661 ft.

OKLAHOMA COUNTY

Cromwell-Franklin's No. 2 Thompson, SW NE Sec. 15-12-3w .....Rig.
Warr et al's No. 1 Castle, SW NW, Sec. 20-11-3w.....Rig.
J. F. Cuniff, trustee's No. 1 Church Land, NE SW SE, Sec. 17-12-4w .....Drlg. 4,290 ft.
Magnolia and Ramsey's No. 1 Johnson, C NE SW, Sec. 35-13-3w .....Drlg. 4,815 ft.
Ryan Consolidated's No. 1 Lawton, NE NW, Sec. 3-11-2w. Drlg. 4,940 ft.
Tom Slick Oil Co.'s No. 1 Martin, C NW NW, Sec. 13-13-1w .....T. D. 6,971 ft.; water; plugging back 6,871 ft.; testing.
Hall & Briscoe's No. 1 Holmes, NE cor. SW SE, Sec. 10-11-3w .....Drlg. 4,500 ft.

OSAGE COUNTY

Peters Petroleum Co.'s No. 1, SW cor. NE Sec. 5-22-8..Rig.
Kay County Gas' No. 1, C N half NE, Sec. 28-24-4.....Drlg. 1,575 ft.
Continental Oil Co.'s No. 1, NW SE SE, Sec. 24-24-5.....Drlg. 2,225 ft.

PAWNEE COUNTY

Shaffer O. & R. Co.'s No. 1 Jones, SW NE, Sec. 22-20-5..Location.
Cochran et al's No. 1 Green, NE cor. SW, Sec. 15-23-5...Rig.

PITTSBURG COUNTY

Empire O. & R. Co.'s No. 1 Williams, C NE SE, Sec. 33-7-16e .....Shut down 3,975 ft.

POTTAWATOMIE COUNTY

Keister & Manning's No. 1 Rowlett, SW SE NE, Sec. 30-8-4 .....Drlg. 4,468-80 ft.; pinched to 100 bbls.
Payne Drlg. Co.'s No. 1 Bullock, SE NE, Sec. 22-6-3.....Shut down 4,130-4,201 ft.; hole full water.

ROGER MILLS COUNTY

Bucy & Stone's No. 1 Williams, C SW, Sec. 23-12-24w...Shut down 1,700 ft.
L. C. Hivick's No. 1 Davis, C NW NE, Sec. 4-11-26w....Drlg. 2,908 ft.

SEMINOLE COUNTY

M. H. Watt et al's No. 1 McGilbray, SE NE Sec. 4-8-8 ..Location.
Magnolia and Twin State Oil Co.'s No. 1 Harns, SW NE NE Sec. 8-5-6 .....Rig.
Producers & Refiners' No. 1 Factor, NW SW, Sec. 30-6-6. Drlg. 2,530 ft.
Independent Oil & Gas Co.'s No. 1 Johnson, C NE NE, Sec. 33-9-8 .....Drlg. 3,300 ft.
Prairie Oil & Gas Co.'s No. 1 Anders, NW cor., Sec. 23-6-6 .....Drlg. 3,220 ft.
Anderson & Kerr's No. 1 Morgan, SE cor. Sec. 19-6-6 ....Drlg. 2,768 ft.
Sunray Oil Co.'s No. 1 Sunday, NW SE, Sec. 35-5-5.....Location.

WASHITA COUNTY

Southern Inv. Co.'s No. 1 Musie, NW cor. Sec. 10-9-20w..Rig.

WOODS COUNTY

Peerless O. & G. Co.'s No. 1 Crowell, C NW NE Sec. 23-28-16w .....Drlg. 4,775 ft.
Gypsy-Prairie et al's No. 1 Thompson, SE cor. SW, Sec. 10-25-15w .....Fishing 6,104 ft.
Sinclair Oil & Gas Co.'s No. 1 Showwalter, C SW SW, Sec. 33-27-16w .....Drlg. 6,773 ft.

WOODWARD COUNTY

Farrond et al's No. 1 Unknown, SE cor. SW SE, Sec. 2-23-17w .....Shut down 1,387 ft.
Prairie Oil & Gas et al's No. 1 Wilbur, NE cor. NW, Sec. 22-23-17w .....Drlg. 6,190 ft.
Burgoyne Brothers' No. 1 Merkins, SW cor. SE NE, Sec. 15-21-19w .....Shut down 1,910 ft.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Bryant-Croxton's No. 1 Mason, NW NE NW, Sec. 4-1s-14. Shut down 1,493 ft.
Bookshire's No. 1 Guinn, NW cor., Sec. 18-3s-10.....Shut down 100 ft.

BRYAN COUNTY

Johnson et al's No. 1 Ussery, SE SW SE Sec. 14-6s-7e...Rig on ground.
Slab Oil Co.'s No. 1 Ryle, NW SE SE, Sec. 27-6s-7.....Fishing 265 ft.
Marshall's No. 2 Fee, C SW SE NW, Sec. 26-5s-7.....Shut down; 6-in. csg. 365 ft.
Yale Oil Syndicate's No. 1 Craige, C NW NE, Sec. 36-9s-9e .....Drlg. 2,200 ft.

CARTER COUNTY

Campen-Lasater Co.'s No. 1 Anderson, NE cor. SE NE SE, Sec. 32-4s-2 .....Fishing 1,980 ft.

CHOCTAW COUNTY

Choctaw Petroleum Co.'s No. 1 Wilson, SW cor. SW, Sec. 15-6-19e .....Shut down 1,346 ft.

COMANCHE COUNTY

Pelwin Oil Co.'s No. 1 Tafepirdy, C NW NE NE, Sec. 5-1s-9w .....Location.

COTTON COUNTY

Empire O & R. Co.'s No. 1 Chambers, NW SE, Sec. 8-3-9w .....Drlg. 30 ft.
American Ref. Co.'s No. 1 Miller, SE SW, Sec. 9-5s-12w..Abandoned 2,200 ft.
T. Medlin's No. 1 Johns, SW SE, Sec. 8-2s-9w .....Drlg. 2,526 ft.

JEFFERSON COUNTY

Roy Johnson's No. 1 Pettett, NE cor. Sec. 10-4s-4w ....Abandoned 1,541 ft.
Hart's No. 1 Standfield, C W half NE SE, Sec. 33-7s-6w. Drlg. 1,135 ft.

JOHNSTON COUNTY

N. A. Neff's No. 1 Chapman, C SW NW, Sec. 20-4s-5.....Location.

LOVE COUNTY

Gilcrease Oil's No. 1 Burkheart, NE NW, Sec. 13-6s-1...Rig.

MARSHALL COUNTY

Golden Rule Oil Co.'s No. 1 Reeves-Gray, C NW SE NE, Sec. 19-6s-6 .....Drlg. 445 ft.

McCURTAIN COUNTY

Milton et al's No. 1 Vase, SW NW, Sec. 26-6s-21.....Shut down 2,287 ft.

STEPHENS COUNTY

Wirt Franklin Petroleum Corp.'s No. 1 McPhail, NW SE, Sec. 1-2s-7w .....Drlg. 2,662 ft.
Smythe et al's No. 1 Johnson, NE cor., Sec. 30-2-8w....Swabbing 2,476-87 ft.; swab. 12 bbls. oil first day.

TILLMAN COUNTY

Bridwell Oil Co.'s No. 1 Rutherford, NE SE Sec. 11-4s-16w .....Drlg. 800 ft.
Flake's No. 1 Barba, NE SE NE SE, Sec. 19-1s-16w....Shut down 832 ft.
Allen Brothers' No. 1 Howell, SW NE, Sec. 13-1-17w....Fishing 825 ft.
Nance et al's No. 1 Massie, NE NW, Sec. 36-1s-6w.....Location.
Landfair et al's No. 1 Smith, SE SW SE, Sec. 6-2s-16w..Shut down 2,535 ft.

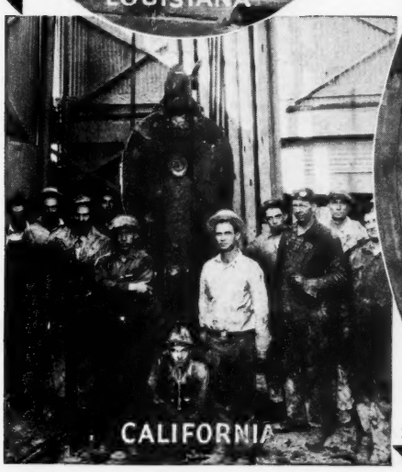
Yellow Strand Rotary Drilling Lines in Every Field

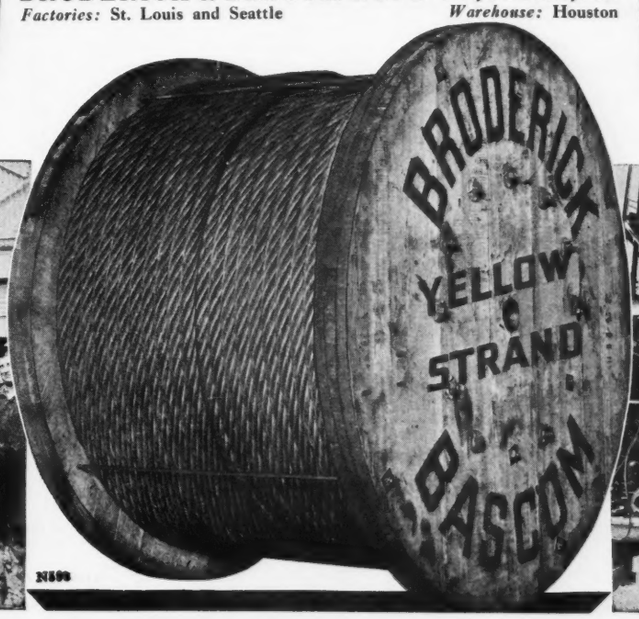
One Big Idea moves the operators in all fields to repeatedly specify Yellow Strand Rotary Drilling Lines. They get more service for their money from this unusually elastic, non-crushing and dependable rope, of *uniform* strength. The wire is drawn from pure Swedish stock.

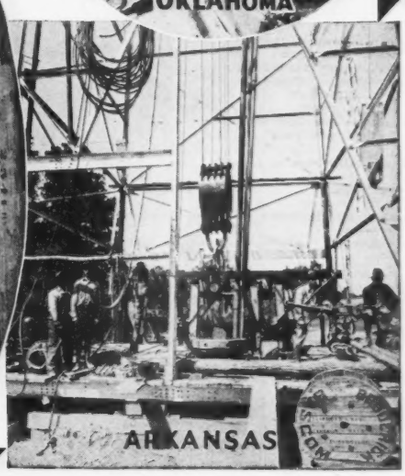
Conveniently located distributors carry stocks especially designed for the requirements of nearby fields. Ask for Catalog K2.

BRODERICK & BASCOM ROPE CO., St. Louis, Mo.

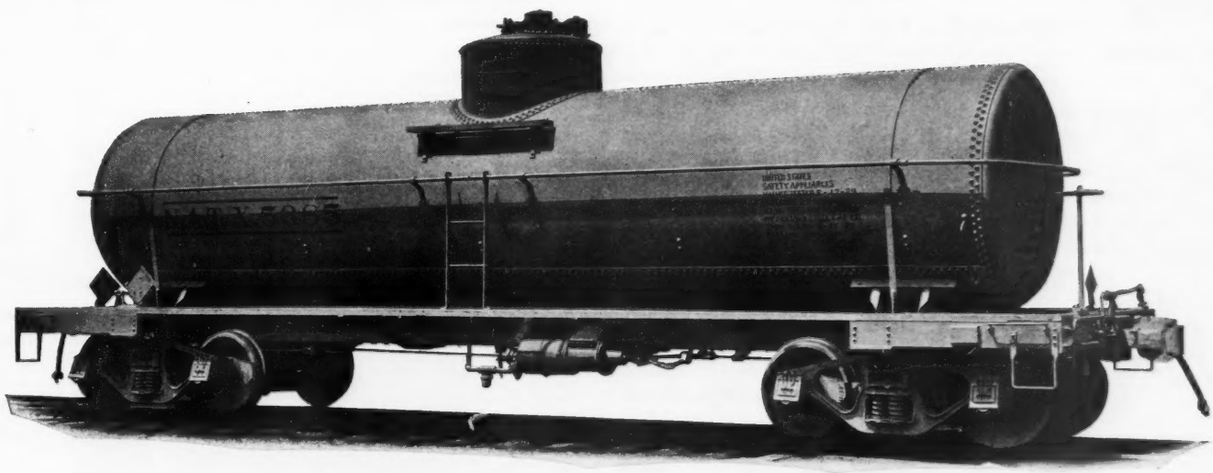
Factories: St. Louis and Seattle *Warehouse:* Houston







TANK CARS OF ALL TYPES



COMPLETE FACILITIES FOR REPAIRING CARS

UNDERFRAMES - TRUCK FRAMES AND BOLSTERS - WHEELS

PRESSED STEEL CAR COMPANY

NEW YORK PITTSBURGH CHICAGO ST. LOUIS ST. PAUL

Bureau of Mines Statistics, Month of January

SUPPLY AND DEMAND OF ALL OILS

(Including wax, coke and asphalt in thousands of barrels of 42 U. S. gallons)

NEW SUPPLY:	January 1930	December 1929	January 1929
Domestic production:			
Crude petroleum	79,453	80,339	81,979
Daily average	2,563	2,592	2,644
Natural gasoline	4,410	4,457	3,983
Benzol	240	238	250
Total production	84,103	85,034	86,212
Daily average	2,713	2,743	2,781
Imports:			
Crude petroleum	5,450	5,887	8,075
Refined products	3,806	2,402	884
Total new supply, all oils	93,359	93,323	95,171
Daily average	3,012	3,010	3,070
Increase in stocks, all oils	4,980	3,595	11,959
DEMAND:			
Total demand	88,379	89,728	83,212
Daily average	2,851	2,894	2,684
Exports: *			
Crude petroleum	1,808	2,089	1,972
Refined products	11,968	12,280	11,714
Domestic demand	74,603	75,359	69,526
Daily average	2,407	2,431	2,243
Excess of daily average domestic production over domestic demand	306	312	538
STOCKS (end of month):			
Crude petroleum:			
Pipe-line, tank-farm, and refinery:			
East of California	379,826	381,391	372,913
California*	148,572	†147,548	119,101
Total crude	528,398	†528,939	492,014
Natural gasoline at plants	611	604	741
Refined products	158,040	†152,526	133,667
Grand total stocks, all oils	687,049	682,069	626,422
Days' supply	241	236	233
Bunker oil (included above in domestic demand)	4,154	4,100	3,915

*Revised. †Includes residual fuel oil and producers' stocks.

COMPARATIVE ANALYSES

(Thousands of barrels of 42 U. S. gallons)

	January, 1930		December, 1929		January, 1929	
	Total	Dly. av.	Total	Dly. av.	Total	Dly. av.
CRUDE PETROLEUM:						
Runs to stills: Domestic	75,050	2,421	75,450	2,435	72,399	2,336
Foreign	5,113	165	5,183	167	6,426	207
Total	80,163	2,586	80,663	2,602	78,825	2,543
Imports	5,450	176	5,887	190	8,075	260
Exports	1,808	58	2,089	67	1,972	64
GASOLINE:						
Production*	36,654	1,182	37,464	1,209	34,690	1,119
Imports	1,079	35	716	23	499	16
Exports	5,458	176	5,964	192	4,650	150
Stocks†	49,676	.....	43,132	.....	40,669	.....
Domestic demand	25,731	830	26,881	867	22,962	741
KEROSENE:						
Production	4,489	145	4,848	156	4,700	152
Imports	9	.....	20	1	38	1
Exports	1,969	64	1,682	54	1,918	62
Stocks	8,571	.....	9,039	.....	8,865	.....
Domestic demand	2,997	97	3,513	113	2,956	95
GAS OIL AND DISTILLATE FUELS:						
Production	6,707	216	.....	.....	.....	.....
Stocks	14,911	.....	.....	.....	.....	.....
RESIDUAL FUEL OILS:						
Production	26,506	855	.....	.....	.....	.....
Stocks‡	20,962	.....	.....	.....	.....	.....
GAS OIL AND FUEL OIL:						
Imports	2,652	86	1,650	53	335	11
Exports	3,295	106	3,394	109	3,699	119
LUBRICANTS:						
Production	2,880	93	2,765	89	2,945	95
Imports	3	.....	2	.....	1	.....
Exports	908	29	899	29	1,116	36
Stocks	8,956	.....	8,269	.....	8,649	.....
Domestic demand	1,288	42	1,716	55	1,521	49
WAX (thousands of pounds):						
Production	52,360	1,689	49,104	1,584	58,885	1,900
Imports	2,220	72	3,860	125	2,982	96
Exports	32,326	1,043	26,354	850	28,065	905
Stocks	206,249	.....	187,990	.....	123,521	.....
Domestic demand	3,995	129	24,179	780	20,625	665
COKE (short tons):						
Production	145,500	4,700	170,900	5,500	137,900	4,400
Stocks	740,500	.....	744,900	.....	404,700	.....
ASPHALT (short tons):						
Production	191,100	6,200	187,900	6,100	188,400	6,100
Stocks	244,300	.....	240,300	.....	229,100	.....
ROAD OIL:						
Production	318	10	.....	.....	.....	.....
Stocks	329	.....	.....	.....	.....	.....
MISCELLANEOUS:						
Production	603	19	699	23	661	21
Stocks	639	.....	1,156	.....	653	.....

*Includes benzol production and natural gasoline used elsewhere than at refineries east of California. †Includes motor fuel blends held at natural gasoline plants. ‡East of California.

PRODUCTION OF CRUDE PETROLEUM BY FIELDS

(Thousands of barrels of 42 U. S. gallons)

FIELD:	January, 1930		December, 1929		January, 1929	
	Total	Dly. av.	Total	Dly. av.	Total	Dly. av.
Appalachian:						
Pennsylvania grade	2,191	71	2,118	69	1,799	58
Other	860	28	900	29	784	25
Lima, N. E. Ind.-Mich.	501	16	482	15	267	8
Ill.-S. W. Ind.	561	18	567	19	589	19
Mid-Continent:						
N. La. and Ark.	2,777	90	3,047	99	3,377	109
W. Texas-S. E. New Mex.	10,589	341	10,694	345	11,525	372
Other (Okla., Kans., N. Tex., etc.)	32,480	1,048	33,483	1,079	33,894	1,093
Gulf Coast:						
Grade A	2,410	78	2,236	72	1,913	62
Grade B	3,236	104	3,045	98	2,340	75
Rocky Mountain	1,865	60	2,062	67	2,105	69
California	21,983	709	21,705	700	23,386	754
Total	79,453	2,563	80,339	2,592	81,979	2,644

PRODUCTION OF CRUDE PETROLEUM BY STATES WITH CLASSIFICATION BY GRAVITY

(Thousands of barrels of 42 U. S. gallons)

	January, 1930		December, 1929		January, 1929	
	Total	Dly. av.	Total	Dly. av.	Total	Dly. av.
Arkansas	1,635	53	1,875	61	2,324	75
California:						
Long Beach	3,298	106	3,254	105	5,635	182
Santa Fe Springs	5,302	171	5,193	168	4,760	154
Rest of State	13,383	432	13,258	427	12,991	418
Total California	21,983	709	21,705	700	23,386	754
Colorado	138	4	166	5	214	7
Illinois	487	16	490	16	506	16
Indiana:						
Southwestern	74	2	77	3	83	3
Northeastern	3	.....	5	.....	4	.....
Total Indiana	77	2	82	3	87	3
Kansas	3,155	102	3,477	112	2,929	95
Kentucky	659	21	711	23	586	19
Louisiana:						
Gulf Coast	537	17	602	19	723	23
Rest of State	1,142	37	1,172	38	1,053	34
Total Louisiana	1,679	54	1,774	57	1,776	57
Michigan	397	13	372	12	159	5
Montana	226	7	237	8	306	10
New Mexico	308	10	248	8	76	3
New York	315	10	298	10	255	8
Ohio:						
Central and eastern	449	15	437	14	428	14
Northwestern	101	3	105	3	104	3
Total Ohio	550	18	542	17	532	17
Oklahoma:						
Osage County	1,037	33	1,159	37	1,399	45
Oklahoma City	2,533	82	2,295	74	159	5
Seminole	9,031	291	9,627	311	12,840	414
Rest of State	7,520	243	7,044	227	8,486	274
Total Oklahoma	20,121	649	20,125	649	22,884	738
Pennsylvania	1,162	38	1,110	36	850	27
Tennessee	2	.....	.....	.....	2	.....
Texas:						
Gulf Coast	5,109	165	4,679	151	3,530	114
West Texas	10,334	333	10,494	339	11,489	371
Rest of State	9,204	297	9,881	318	8,081	260
Total Texas	24,647	795	25,054	808	23,100	745
West Virginia	464	15	462	15	462	15
Wyoming:						
Salt Creek	846	27	944	31	916	30
Rest of State	602	20	667	21	629	20
Total Wyoming	1,448	47	1,611	52	1,545	50
Total United States	79,453	2,563	80,339	2,592	81,979	2,644
CLASSIFICATION BY GRAVITY (approx.):						
Light crude	70,341	2,269	71,264	2,299	74,812	2,413
Heavy crude	9,112	294	9,075	293	7,167	231

STOCKS OF CRUDE PETROLEUM

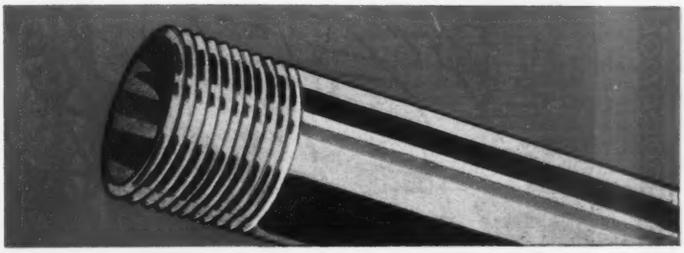
(Thousands of barrels of 42 U. S. gallons)

EAST OF CALIFORNIA:	Jan. 31, 1930	Dec. 31, 1929	Jan. 31, 1929
At refineries by location:			
East Coast: Domestic	8,353	3,955	8,340
Foreign*	3,881	4,069	5,141
Appalachian	2,930	2,953	2,256
Indiana, Illinois, Kentucky, Michigan, etc.	3,036	3,305	2,856
Oklahoma, Kansas and Missouri	5,395	5,610	6,001
Texas: Inland	2,246	2,034	2,166
Gulf Coast: Domestic	10,317	10,749	8,130
Foreign*	346	517	577
Arkansas and Inland Louisiana	985	1,050	841
Louisiana Gulf Coast: Domestic	4,056	3,930	2,731
Foreign	1,372	1,499	1,717
Rocky Mountain	1,591	1,636	2,098
Total	44,508	46,307	42,854
At refineries by origin:			
Pennsylvania grade	2,624	(†)	(†)
Other Appalachian (inc. Kentucky)	945	(†)	(†)
Lima-N. E. Indiana-Michigan	224	(†)	(†)
Illinois-S. W. Indiana	196	(†)	(†)
North Louisiana and Arkansas	4,989	(†)	(†)
West Texas and Southeast New Mexico	4,621	(†)	(†)
Oklahoma, Kansas, North Texas, etc.	16,933	(†)	(†)
Gulf Coast: Grade A	3,728	(†)	(†)
Grade B	3,016	(†)	(†)
Rocky Mountain	1,591	(†)	(†)
California	42	(†)	(†)
Foreign*	5,599	6,085	7,435
Total	44,508	46,307	42,854
Elsewhere than at refineries by origin:			
Pennsylvania grade	4,642	4,433	5,479
Other Appalachian (inc. Kentucky)	773	816	
Lima-N. E. Indiana-Michigan	677	544	1,115
Illinois-Southwest Indiana	10,200	10,411	11,312
North Louisiana and Arkansas	21,440	21,568	26,353
West Texas and Southeast New Mexico	52,510	252,504	241,984
Oklahoma, Kansas, North Texas, etc.	200,443		
Gulf Coast: Grade A	8,973	8,746	18,568
Grade B	11,173	11,383	
Rocky Mountain	24,487	24,679	25,248
Total	335,318	335,084	330,059
Total east of California	379,826	381,391	372,913
CLASSIFICATION BY GRAVITY (approx.):			
East of California: Light	341,442	342,049	322,749
Heavy	38,384	39,342	50,164
California: Light	41,868	41,049	20,110
Heavy (including fuel)	106,704	‡106,499	98,991
PRODUCERS' STOCKS (not included above; approx.):			
East of California: Seminole	569	538	497
Other	5,781	5,512	6,103
Total	6,350	6,050	6,600

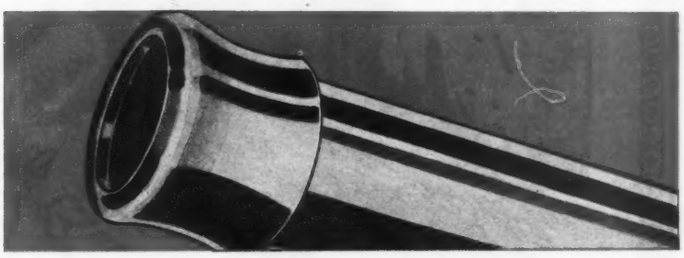
*Includes importers' stocks. †Not yet available. ‡Revised by deducting gas oil (5,337,000 bbls.) and unfinished oils (250,000 bbls.).

(Continued on next page)

Making GOOD PIPE is *not* ENOUGH



You MUST PROTECT IT



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PIPE THREAD PROTECTORS

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Back of this advertisement and the Pure Oil salesmen, back of the products which they sell, is a vast army of men—ready to serve you. Hundreds are working in Pure Oil's producing fields, others are operating its modern refineries. Some direct the movements of Pure Oil tank cars while some flash orders over private telegraph lines. *Every* operation from wells to you is ably controlled by The Pure Oil Company—your assurance of uniform quality . . . delivery on the dot!

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Over WJZ and 21 Stations of N. B. C.
Every Tuesday Night

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Tampa, Fla.
Miami, Fla.
Pensacola, Fla.
Tulsa, Okla.
Beaumont, Tex.

RUNS TO STILLS AND OUTPUT OF REFINERIES, JANUARY, 1930

(Thousands of barrels of 42 U. S. gallons)

INPUT—	Crude oil: Domestic	Crude oil: Foreign	Crude oil: Total	Unfinished oils rerun	Natural gasoline	Total input
East Coast	9,863	4,726	14,589	1,336	254	16,179
Appalachian	2,685	....	2,685	145	60	2,890
Indiana, Illinois, Kentucky, etc.	9,429	....	9,429	1,056	297	10,782
Oklahoma, Kansas, Missouri	9,270	....	9,270	375	366	10,011
Texas	18,225	183	18,408	469	841	19,718
Louisiana and Arkansas	5,445	204	5,649	780	431	6,860
Rocky Mountain	1,766	....	1,766	455	86	2,307
California	18,367	....	18,367	*549	†1,423	20,339
United States total	75,050	5,113	80,163	5,165	3,758	89,086
Texas Gulf Coast	13,352	183	13,535	298	662	14,495
Louisiana Gulf Coast	3,426	204	3,630	551	314	4,495

OUTPUT—	Gas oil and fuel oils: Gasoline	Kerosene	Gas oil and distillate fuels	Residual fuel oils	Total	Lubricants	Wax (thousands of pounds)‡
East Coast	5,587	790	1,830	5,715	7,545	914	19,320
Appalachian	1,229	309	191	267	458	409	8,960
Indiana, Illinois, Kentucky, etc.	5,558	452	982	2,206	3,188	340	4,760
Oklahoma, Kansas, Missouri	4,866	650	132	2,248	2,380	236	3,360
Texas	7,768	1,127	1,065	5,211	6,276	650	4,200
Louisiana and Arkansas	2,554	511	902	1,656	2,558	74	7,000
Rocky Mountain	1,080	83	83	375	458	31	4,760
California	7,491	567	1,522	8,828	10,350	226	....
United States total	36,133	4,489	6,707	26,506	33,213	2,880	52,360
Texas Gulf Coast	5,749	4,874	937	2,977	3,914	626	3,640
Louisiana Gulf Coast	1,901	437	690	724	1,414	67	7,000

OUTPUT (continued)—	Coke (tons)‡	Asphalt‡ (tons)	Other finished products: Road oil	Other finished products: Miscellaneous	Other finished products: Total	Unfinished products	Shortage
East Coast	15,500	61,000	3	55	58	248	553
Appalachian	4,700	2,400	...	29	29	215	172
Indiana, Illinois, Kentucky, etc.	39,400	52,700	118	133	251	296	189
Oklahoma, Kansas, Missouri	31,000	2,000	33	82	115	1,155	428
Texas	18,100	12,200	17	23	40	2,656	1,027
Louisiana and Arkansas	13,900	23,400	35	156	191	512	235
Rocky Mountain	10,400	.....	8	11	19	515	51
California	12,500	37,300	104	114	118	*780	438
United States total	145,500	191,100	318	603	821	6,377	3,093
Texas Gulf Coast	9,800	12,200	17	2	19	2,383	801
Louisiana Gulf Coast	13,700	18,900	35	150	185	187	105

*Includes 227,000 bbls. net tops produced.
†Includes 234,000 bbls. run through pipe lines.
‡Wax, coke and asphalt equivalent to 280 pounds per barrel and 5.1 and 5.5 bbls. per ton, respectively. These coefficients will be used during the entire year.

GASOLINE PRODUCTION BY THE VARIOUS METHODS—JANUARY, 1930

(Thousands of barrels of 42 U. S. gallons)

	Straightrun: Total	Straightrun: %	Cracked: Total	Cracked: %	Natural gasoline: Total	Natural gasoline: %	Grand total
East Coast	2,556	46	2,777	50	254	4	5,587
Appalachian	787	64	382	31	60	5	1,229
Indiana, Illinois, Kentucky, etc.	2,832	51	2,429	44	297	5	5,558
Oklahoma, Kansas, Missouri	2,812	58	1,688	35	366	7	4,866
Texas	3,925	50	3,002	39	841	11	7,768
Louisiana and Arkansas	1,134	44	989	39	431	17	2,554
Rocky Mountain	515	48	479	44	86	8	1,080
California	4,804	64	1,264	17	*1,423	19	7,491
Total	19,365	54	13,010	36	3,758	10	36,133
Texas Gulf Coast	2,564	45	2,522	44	662	11	5,748
Louisiana Gulf Coast	894	47	693	36	314	17	1,901

*Includes 234,000 bbls. run through pipe lines.

IMPORTS AND EXPORTS OF CRUDE PETROLEUM AND MAJOR REFINED PRODUCTS*

(Thousands of barrels of 42 U. S. gallons)

	Jan., 1930: Total	Jan., 1930: Dy. av.	Dec., 1929: Total	Dec., 1929: Dy. av.	Jan., 1929: Total	Jan., 1929: Dy. av.
CRUDE PETROLEUM:						
Imports	5,450	176	5,887	190	8,075	260
From Mexico	435	14	712	23	784	25
From Venezuela	3,606	117	3,236	104	5,622	181
From Colombia	1,181	38	1,696	55	1,272	41
From other countries	228	7	243	8	397	13
Exports:						
Domestic crude oil	1,808	58	2,089	67	1,972	64
To Canada	1,289	41	1,657	53	1,507	49
To other countries	519	17	432	14	465	15
REFINED PRODUCTS:						
Gasoline:						
Imports	1,079	35	716	23	499	16
Exports	5,458	176	5,964	192	4,650	150
To United Kingdom	1,656	53	2,409	78	1,494	48
To France	878	28	652	21	798	26
To Canada	172	6	328	10	354	11
To other countries	2,590	84	2,569	83	1,860	60
Shipments	162	5	6	....	144	5
Kerosene:						
Exports	1,969	64	1,682	54	1,918	62
To China	238	8	144	5	435	14
To United Kingdom	336	11	253	8	375	12
To other countries	1,364	44	1,279	41	1,086	35
Shipments	31	1	6	....	22	1
Gas oil and fuel oil:						
Imports	2,652	86	1,650	53	335	11
Exports	3,295	106	3,394	109	3,699	119
To Chile	450	14	651	21	541	17
To Panama	87	3	345	11	217	7
To other countries	2,484	80	2,120	68	2,585	83
Shipments	274	9	278	9	356	12
Lubricants:						
Exports	908	29	899	29	1,116	36
To United Kingdom	264	8	116	4	163	5
To France	144	5	100	3	130	4
To other countries	493	16	680	22	817	27
Shipments	7	....	3	....	6	....
Wax (thousands of pounds):						
Imports	2,220	72	3,860	125	2,982	96
Exports	32,326	1,043	26,354	850	28,065	905
To United Kingdom	8,652	279	5,402	174	8,665	279
To Italy	6,998	226	5,470	177	3,339	108
To other countries	16,675	538	15,478	499	16,056	518
Shipments	1	....	4	....	5	....

*From Bureau of Foreign and Domestic Commerce.

INDICATED DOMESTIC DEMAND FOR CRUDE PETROLEUM, EXCLUSIVE OF CALIFORNIA GRADES

(Thousands of barrels of 42 U. S. gallons)

Domestic petroleum by fields of origin:	January, 1930: Total	January, 1930: Dly. av.	December, 1929: Total	December, 1929: Dly. av.	January, 1929: Total	January, 1929: Dly. av.
Appalachian:						
Pennsylvania grade	1,982	64	2,932	95	2,619	84
Other	903	29				
Lima-N. E. Ind.-Mich.	368	12	415	13	314	10
Ill.-S. W. Ind.	772	25	527	17	644	21
Mid-Continent:						
N. La. and Ark.	2,905	94	2,939	95	3,427	111
W. Texas-S. E. New Mex.						
Other (Okla., Kans., N. Tex., etc.)	42,965	1,386	45,098	1,455	42,780	1,380
Gulf Coast:						
Grade A	2,183	70	2,462	79	3,957	128
Grade B	3,446	111	3,150	102		
Rocky Mountain	1,712	55	2,055	66	2,358	76
Total deliveries	57,236	1,846	59,578	1,922	56,099	1,810
Exports	1,056	34	1,376	44	1,268	41
Domestic deliveries	56,180	1,812	58,202	1,878	54,831	1,769
Foreign petroleum	5,439	175	5,905	190	7,998	258
Total domestic deliveries for all grades	61,619	1,987	64,107	2,068	62,829	2,027

SHIPMENTS FROM CALIFORNIA TO EASTERN PORTS IN UNITED STATES

(Thousands of barrels of 42 U. S. gallons)

	Jan., 1930	Dec., 1929	Jan., 1929
Refined products	2,044	2,773	2,162
Gasoline	1,669	1,976	1,823
Kerosene	50	53	....
Gas oil	320	656	334
Fuel oil	3	75	....
Lubricants	....	11	2
Asphalt	2	2	3

NUMBER OF WELLS COMPLETED ALL FIELDS*

	Jan., 1930	Dec., 1929	Jan., 1929
Oil	1,060	1,060	1,111
Gas	223	305	191
Dry	522	610	557
Total	1,805	1,975	1,859

*From The Oil and Gas Journal and California office of American Petroleum Institute.

RECORD OF WELLS FOR VARIOUS IMPORTANT FLUSH FIELDS, JANUARY, 1930*

	Completions: Oil	Completions: Gas	Completions: Dry	Total initial prod. (bbls.)	Ave. initial prod. (bbls.)	Drilling Jan. 31
Seminole, St. Louis, etc.	103	10	25	137,900	1,300	229
West Texas	47	..	20	40,500	900	243
Long Beach	7	..	..	4,800	700	64
Santa Fe Springs	30	..	..	69,500	2,300	125

*From The Oil and Gas Journal and California office of American Petroleum Institute.

PRODUCTION OF MOTOR FUEL

(Thousands of barrels of 42 U. S. gallons)

Gasoline produced at refineries:	Jan., 1930: Total	Jan., 1930: Dy. av.	Dec., 1929: Total	Dec., 1929: Dy. av.	Jan., 1929: Total	Jan., 1929: Dy. av.
Straightrun	19,365	625	19,509	629	20,058	647
Cracked	13,010	420	13,631	440	11,047	356
Natural gasoline:						
Blended at refineries	3,524	114	3,867	125	3,115	101
Run through pipe lines*	234	7	126	4	115	4
Total	36,133	1,166	37,133	1,198	34,335	1,108
Natural gasoline:						
Blended at plants east of California	31	1	43	1	55	2
Sold direct to jobbers	250	8	50	2	50	2
Benzol produced†	240	8	238	8	250	8
Total motor fuel	36,654	1,182	37,464	1,209	34,690	1,120

*To refineries in California.
†Estimated with production of by-product coke as a basis.

STOCKS HELD BY REFINING COMPANIES, JANUARY 31, 1930

(Thousands of barrels of 42 U. S. gallons)

	Gas oil and fuel oil: Gasoline	Kerosene	Gas oil and distillate fuels	Residual fuel oils	Total
East Coast	7,393	1,370	2,325	4,296	6,621
Appalachian	1,619	275	752	194	946
Indiana, Illinois, Kentucky, etc.	7,139	797	1,173	2,033	3,206
Oklahoma, Kansas, Missouri	4,947	976	1,647	1,948	3,595
Texas	7,610	1,500	3,134	9,773	12,907
Louisiana and Arkansas	2,373	529	480	1,971	2,451
Rocky Mountain	2,671	400	411	747	1,158
California	15,909	2,724	4,989	....	4,989
Total	49,661	8,571	14,911	20,962	35,873
Texas Gulf Coast	6,158	1,349	2,880	6,700	9,580
Louisiana Gulf Coast	2,044	469	375	1,176	1,551

	Lubricants	Wax (thousands of pounds): Crude scale	Wax (thousands of pounds): Refined	Wax (thousands of pounds): Total	Coke (tons)
East Coast	3,164	73,856	15,244	89,100	26,800
Appalachian	1,225	18,981	2,767	21,748	5,600
Indiana, Illinois, Kentucky, etc.	857	16,244	1,676	17,920	29,200
Oklahoma, Kansas, Missouri	546	3,011	2,827	5,838	86,100
Texas	1,744	1,327	5,614	6,941	308,500
Louisiana and Arkansas	130	41,614	2,034	43,648	64,000
Rocky Mountain	159	19,979	1,075	21,054	99,400
California	1,131	.....	.....	.....	120,900
Total	8,956	175,012	31,237	206,249	740,500
Texas Gulf Coast	1,686	1,032	5,614	6,646	297,700
Louisiana Gulf Coast	125	41,614	2,034	43,648	64,000

	Other finished products: Asphalt (tons)	Other finished products: Road oil	Other finished products: Miscellaneous	Other finished products: Total	Unfinished oils: Natural gasoline	Unfinished oils: Other	Unfinished oils: Total
East Coast	100,000	19	71	90	118	8,504	8,622
Appalachian	3,600	3	55	58	9	1,577	1,586
Indiana, Illinois, Kentucky, etc.	55,800	76	265	341	49	4,382	4,431
Oklahoma, Kansas, Missouri	3,100	3	42	45	56	2,619	2,675
Texas	3,600	7	18	25	242	14,214	14,456
Louisiana and Arkansas	29,700	157	8	165	33	4,456	4,489
Rocky Mountain	5,400	41	59	100	5	1,727	1,732
California	37,100	23	121	144	1,400	8,762	10,162
Total	244,300	329	639	968	1,912	46,241	48,153
Texas Gulf Coast	9,500	7	8	15	228	12,378	12,606
Louisiana Gulf Coast	24,300	157	4	161	10	3,788	3,798

Report of A.I.M.E. Unitization Study

General Committee Summarizes the Contributions of Groups or Individuals Submitted to Develop Discussion

By Earl Oliver, Chairman; E. L. Estabrook, H. H. Hill, C. E. Beecher, L. L. Brundred and Robert R. Boyd
Acting for the Unitization Committee*

Unitization—in some form from simple agreements among operators to complete consolidation of ownerships—is a means of obviating the wastes of unrestrained competition among owners in extracting oil and gas from a common reservoir, as well as of adjusting its output to the current needs of its owners. It offers opportunity for application of improved production methods which are expected to increase recovery, decrease developing and operating costs, and assist in stabilizing output.

Prompted by the general interest that is now being manifested regarding unitization the petroleum division at its October, 1929, meeting, at Tulsa, resolved:

"That the petroleum division of the A.I.M.E. make a special study of the advantages of unit operation and means of promoting it and that a record of existing results be assembled for general discussion at the New York meeting in February, 1930."

To carry out the purposes of that resolution, Joseph Jensen of Los Angeles, was named chairman of a group to report on unit operation in California; Fred E. Wood, of Casper, on the Rocky Mountain region; A. W. Ambrose and C. E. Beecher, of Bartlesville, on Kansas and Oklahoma; Frederic H. Lahee, of Dallas, on Texas, Arkansas, Louisiana and New Mexico; and Harry H. Hill and E. L. Estabrook, of New York City, on the Appalachian region and foreign fields. Each of these gentlemen selected as helpers many members of the petroleum division.

Questionnaires were sent to the members of the petroleum division. Much information was developed but a period of three months was found inadequate to conplete the study. Unfortunately the papers presented at this meeting must be considered "progress reports" rather than results actually accomplished. Definite conclusions would be premature. No final recommendations are yet possible other than to state it is the opinion of the committee that unitization is a logical and desirable trend in the oil industry, with sufficient public interest involved to warrant the continued analyses and support of the petroleum division.

The study has discovered a definite trend toward unitization with much sympathy for it and many embryonic units already in existence, but their developments in most instances have not progressed to the point where results can be tabulated to show their full significance. Neither has the movement progressed to the point where any single method of unitization has been evolved that is accepted even by its authors as the one correct method to bring about unit operation. Each attempt is admittedly imperfect and incomplete and represents an independent experimental groping toward, rather than an arrival at, the method which will serve as a standard for future efforts. This is said notwithstanding each of these attempts is much in advance of the unorganized competitive style of development, and many already show substantial economic rewards.

Experience Required

Experience over at least one more year should be allowed to prove or disprove contentions that we hope will be promoted at this meeting. Discussion is very much desired. Points against as well as for unit operation should be brought out. Furthermore the proper scope and character of this study should be discussed.

Popularly the term "unitization" has been expanded to include all of the partial steps that are being taken toward the ideal of unit operation, such as drilling and spacing agreements, co-operative repressuring and flooding, etc. Approximately 185 projects that might be included within that classification were reported to the several committees. They were distributed as follows:

Singly operated pools:	
United States pools	15±
Foreign pools	37
Total	52±
Some degree of unitization:	
California pools	15
Oklahoma-Kansas	57
Texas-Louisiana, etc.	30±
Rocky Mountain	27
Foreign	4
Total	133±

World production during 1928 totaled approximately 1,322,370,000 bbls. Of this amount the United States produced approximately 901,474,000 bbls., or 68 per cent of the total world output. The amount produced under unit operation in the United States was negligible in quantity. Of the 420,896,000 bbls. produced in foreign countries, approximately 231,400,000 bbls., or 55 per cent of the total, was produced under unit operation. The complete figures for 1929 are not available but the percentage of the total produced by unit pools in foreign fields was doubtless somewhat higher.

Classification of Oil and Gas Pools

For the purposes of this discussion oil and gas pools, both developed and undeveloped, are separated into four classifications which, for convenience, will be designated "unit," "near-unit," "co-operative" and "competitive."

Unit Pool

This term will be applied in those cases where a single management controls the development and operation of the entire pool in such manner that surface property lines may be completely disregarded, and which will permit of utilizing to a maximum forces of expulsion native to the reservoir. A notable example is the Temple of Solomon Pool in Persia.

Near-Unit Pool

This term will be applied in those cases where a single management controls and develops the entire pool or main part thereof, but in which control developments and operations are influenced by regard for conflicting royalty or lease interests so that oil and gas must be extracted at points determined to some extent by surface boundaries as distinguished from being influenced solely by reservoir content. A notable example is Salt Creek Pool in Wyoming.

Co-operative Pool

This term will be applied to those cases where several or many managements whose limitations are determined by surface boundaries control the development and operations in a single pool, but over which several managements there is a committee or some other authority named by them that regulates to some extent the rate and character of development and extraction from that pool. A notable example is the yates Pool in Pecos County, Texas.

Competitive Pool

This term will be applied to those cases where several or many managements whose limitations are determined by surface boundaries, control the developments and operations in a single pool, but over which diversified managements there is no co-ordinating control except that which is imposed by practices and laws of the industry. Most pools in the United States come within this classification.

* * *

CALIFORNIA

(Summarized from Report by Joseph Jensen)

No outstanding example of an important producing unit operation exists in California today where the competitive drilling draining feature is or was entirely eliminated. The land situation differs a great deal in various parts of the State. Along the coast there were enormous old Spanish land grants. In Ventura and Santa Barbara Counties, particularly, these have not yet been cut into small tracts, as they generally have been in the Los Angeles Basin. This condition accounts for such fields as Lompoc, Santa Maria, Elwood, Ventura and Tapo Canyon.

In certain other parts of the State railroad land grants were made and partially disposed of. Again tracts of 160 acres were taken up as placer mining grants and finally in the Los Angeles Basin lands were in many instances divided into very small parcels. These varying conditions determine to a considerable extent the type of oil field development existing in California.

However, at this time much attention is being directed along co-operative and unitization lines. An outstanding present effort looking toward co-operative development is that proposed for Kettleman Hills.

The following classifications of California oil pools was made by Robert R. Boyd in summarizing Mr. Jensen's report.

Unit Operation

Five pools—number of wells approximately 357; average daily production approximately 930 bbls.

Producing pools—small structures covered by one ownership. Statistics generally covered or included with other fields. Lompoc, shut in in 1929, repressuring; Shields Canyon, South Mountain, Tapo and Wolfskill Dome.

Near-Unit Operations

One producing pool—number of wells approximately 100; average daily production estimated 7,000 bbls.

Producing—Distinct structure entirely covered by one operator. Land ownership divided. A good example of orderly development, is being repressured.

West Coyote—Statistics included with East Coyote.

Prospective—Carpenteria, three ownerships, one drilling well. Agreements contemplate full unit operators.

Co-operative Pools

Twelve pools—total number of wells 671; average daily production February, 1930, 100,835 bbls.

They all vary as to the extent of co-operation.

Extent of Co-operation

Name—	Hole spacing	Penetration	Repressuring	Drlg. prog.
Belridge	•			
Fruitvale	•			
Round Mountain	•			
Wheeler Ridge	•			
Santa Maria	•			
Inglewood	•	•		
Dominguez	•	•	•	•
Seal Beach-Main Field	•	•	•	
Montebello	•	•		
East Coyote	•	•		
Ventura Ave.	•	•	•	
Kettleman Hills	•	•		•
Total	12	7	3	2

Co-operative pools, in prospective stage: Angiola, Rimpan, Huasna and Oxnard Plain.

Competitive pools, number of structures 38; number of wells 9,600; average daily production 698,000 bbls., February 1.

In this group are included the balance of the pools in the State.

Offset agreements are generally in effect except in town lot areas. In but few cases are the restrictions in excess of 150 feet from the line. Agreements often exist between individual operators holding substantial acreage, covering gas pressure carried in wells, drilling program, etc.

* * *

ROCKY MOUNTAIN REGION

(Compiled from Report of F. E. Wood)

Mr. Wood tabulates a saving of $20,752,000 in production and development costs alone in seven unit and near-unit pools. These figures do not include savings as reduction in general overhead, field and general office management, elimination of need for increased pipe lines and storage facilities and gas plants to care for peak production, etc., etc. He concludes that unitization is highly profitable and justified from demonstrated actual savings in development and operating costs alone, without taking into consideration intangible benefits such as saving gas and increasing ultimate recovery.

In the Rocky Mountain district 15 unit, 10 near-unit and 2 co-operative producing pools are reported and described. Certain of these produce gas only while from others the oil production is not large.

As a near-unit project the Salt Creek Field is an outstanding example. The methods and merits of unitization are here exemplified by several years experi-

SUMMARY OF A.I.M.E. UNIT OPERATION STUDY

(Note by Earl Oliver, Chairman of Committee)

The general report of the A.I.M.E. Unitization Committee was prepared after arrival of the committee members in New York for the annual meeting and consequently was not available for distribution at that meeting. It is given herewith and is in the nature of a progress report. Other papers delivered in the meeting were contributions of groups or individuals submitted to develop discussion. They indicated the drift of sentiment but should not be construed as the official findings of the committee. It desires additional information before it feels justified in making final recommendations on many of the suggestions presented.

The writer desires particularly to apply this word of caution regarding the Oliver-Umpleby paper reproduced in The Oil and Gas Journal of February 27 that might in the absence of any other reports cause it to be regarded as the report of the committee. As set forth in that paper, it represented only the viewpoints of its authors, submitted to promote discussion and voices personal opinions on points that are yet open to question. The committee report was prepared by Earl Oliver, E. L. Estabrook, H. H. Hill, C. E. Beecher, L. L. Brundred and Robert R. Boyd, acting for the Unitization Committee.

*Before A.I.M.E. New York meeting.

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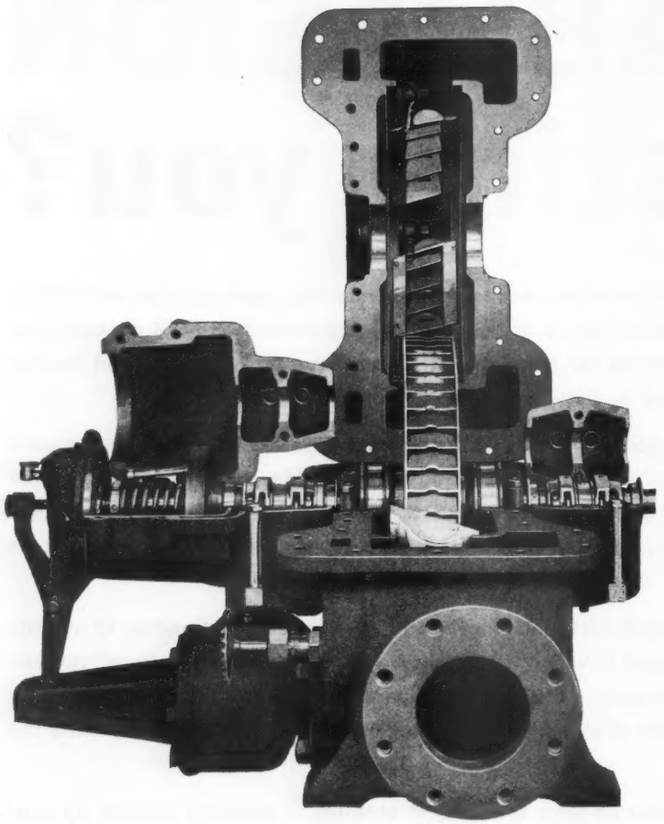

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ence. Mr. Wood calculates the saving in that pool in developing and operating costs alone at $11,650,000.

* * *

KANSAS AND OKLAHOMA

(Summarized from Report of A. W. Ambrose and C. E. Beecher)

Messrs. Ambrose and Beecher states:

"The information received indicates that unitization is growing rapidly in this area, but has not been in operation for a sufficient length of time to develop any production history. It was found impossible to obtain a record of all unitization projects in the time available. The magnitude of such projects is indicated by the fact that reports were received covering a total of 30 unitization projects in Kansas and 27 in Oklahoma with an aggregate acreage in each case of 171,240 and 49,350 acres respectively. Most of these units have been formed during the past two years, the largest per cent having been completed in 1929 and it is anticipated that a greater number will be formed during the present year."

The following important facts have been emphasized by answers to the questionnaire and discussion with various operators.

"1. Unitization is growing rapidly as evidenced by the number of units and the large total acreage now included in units as compared with practically no acreage two years ago.

"2. Operators are convinced that unitization is reducing development and operating cost and they anticipate greater reductions as experience is gained in unit operation.

"3. Producing units have not been in operation for a sufficient length of time to give any production history from which to estimate the ultimate recovery of oil. However, the general opinion seems to be that more oil will be recovered.

"4. In view of the benefits to be derived from unitization, many operators are refusing to carry on wildcat operations unless a unit has been formed. If this attitude continues to grow there will be no large pools developed in Oklahoma and Kansas in the future except under unit control."

We fear the last sentence expresses hope rather than expectation. The report locates and describes in some detail each of these 57 unitization projects. All of them fall either within the near-unit or the co-operative pool classification.

* * *

ARKANSAS, LOUISIANA, TEXAS AND NEW MEXICO

(Summarized from Report of F. H. Lahee)

Mr. Lahee states the problem very nicely as follows:

"By unit operation, as I understand the term, we mean the development and operation, by one management, of a single entire pool, or reservoir, of petroleum, on a systematic and scientific plan which is best calculated ultimately to extract from the pay sand and bring to the surface of the ground the largest possible amount of oil with the greatest possible total profit. I say 'ultimately' advisedly, for 'unit operation' further implies conservation, production at a reasonable rate, and reduction of losses to a minimum.

"Unit operation may be very simple where the pool lies wholly within a large fee ownership which has been leased to one operating company and where no royalty interest has been sold; but this Utopian condition is practically unknown in this country. Ordinarily, if the pool is included within one large lease, there are numerous outstanding royalty interests. Most commonly the pool lies beneath several or many lease ownerships, with many mineral and royalty interests outstanding. For unit operation of a pool under these circumstances, co-operative agreements must be reached by the various interested parties and a responsible operating management must be appointed. The consummation of such agreements and of co-operative programs for unit operation by a single management is what we mean by the word unitization.

"No one, as far as I have been able to ascertain, denies the advantages, both scientific and practical, of unit operation."

* * *

SOUTH MID-CONTINENT

"In the south Mid-Continent area, including the states of Arkansas, Louisiana, Texas and New Mexico, there are many examples of blocks of leases, or of single large leases, held and operated by a single company. From the technical point of view these may be unit operations, but they do not involve the same difficulties of co-operation which affect blocks of multiple lease ownership. The principal obstacle to unit operation of blocks held by one lessee is encountered where the leased acreage includes many royalty and fee ownerships, and the royalty owners and fee owners demand drilling on the particular tracts in which they are interested. Drilling requirements of this kind may entirely disrupt any rational program of development. Particularly is this true in Texas where land boundaries are so irregular."

In addition to several unit and near-unit projects in Texas that occur by reason of the fact that an entire pool, either developed or undeveloped, is under lease to one company, there were reported to Mr. Lahee a number of unitization projects, all of which either fall within the near-unit or in the co-operative development class. Two occur in Arkansas. None were reported from Louisiana. A considerable number occur in the Salt Dome regions of Louisiana and Texas. In other parts of Texas a number of the near-unit type are producing, while many more are being started but have not progressed much beyond the mere blocking of acreage.

Van Zandt County

A near-unit project in Van Zandt County, East Texas, justifies discussion at greater length. It was recently unitized after the discovery well was completed and is thought to involve the latest constructive thought on the procedure of consolidating properties for unitization purposes. The plan affects a solid block of nearly 6,000 acres which was outlined to conform with the shallow subsurface structure plotted on scattered cove-hole data. Within this block the acreage holdings are such that the five participating companies own percentages of the whole, respectively as follows: 81.70, 7.75, 4.51, 3.57 and 2.47 per cent. The company having the major interest is operating the property. All five participants will share in cost and profits on the basis of their fractional interests.

For a time these interests will be tentatively based on the amount of acreage originally held by each company, but after there has been time to accumulate data for constructing satisfactory production decline curves, readjustment of this schedule will be made based on the ratio of estimated ultimate productivity of the leases owned by each party to the estimated ultimate recovery of all the leases in the block, and readjustment of costs and profits will be retroactive to the beginning on the new schedule. In this manner the owners of the more productive leases will in the end reap proportionally greater profits per acre than the owners of the less productive leases. In other words the parties will benefit in proportion to the more or less fortunate position of their leases in the pool. By this method one of the objections often raised to unitization is removed, the objection that pro rata distribution of profits based only on acreage may reduce the income of these leaseholders who own the most productive tracts.

Yates Pool

The outstanding type of co-operative pool is the Yates Pool in Pecos County, Texas. It extends over about 16,000 acres leased to 17 operators. There are about 350 producing wells with a total potential daily capacity between 1,500,000 to 2,500,000 bbls., but with a total daily market capacity of 136,000 bbls. or about 5 per cent of the potential capacity.

An operator's committee was formed to adjust this market capacity equitably between the 17 operators. At the invitation of the operators the State Rail-

road Commission (which is the department of state government in Texas that has supervision over oil and gas) issued an order placing the field under proration. The proration plan including its details of operation were worked out by a committee of the operators and is administered by the Railroad Commission.

Mr. Lahee concludes his paper on unitization by stating that unit operation appears to be working very well in several localities in Texas but that a majority of the participants are major companies. From the small independent operator and royalty owners, various objections were raised. He considers these objections are due to imperfect and poorly adjusted workings of unitization and believes they will gradually disappear as fair and considerate treatment is accorded all parties and confidence becomes established through a better understanding of the advantages to be attained through unitization.

* * *

Future Scope of Unitization Study

T. L. Estabrook co-operated with H. H. Hill in accumulating and preparing material on Eastern United States and Foreign Fields. In addition he prepared an analysis of the character continued study should take that justifies being quoted at length in this summary, and is as follows:

"The New York members of the committee were assigned the foreign correspondence as well as that covering the eastern United States and they soon found that the exchange of letters with the members in distant countries is a slow matter. Acknowledgments of the receipt of the questionnaire and advices that the writers are working on the problem are pouring in but the time available has not been sufficient to permit the foreign members to prepare their data and get them to us. The correspondence has at least given us a fair idea of the status of unitization in foreign fields and Mr. Hill is presenting that information together with some brief descriptions of important operations but a number of months will certainly pass before much of the information we seek will come to our hands.

"The ideal of unit operation contemplates the development and exploitation of each oil pool by a single operator, or jointly by several operators who will develop and produce in accordance with a predetermined plan having as its objects the conservation of the hydrocarbon contents of the pool and the maximum ultimate profit to the owners. Popularly the term "unitization" has been expanded to include all of the partial steps that are being taken toward the ideal of unit operation, such as drilling and spacing agreements, co-operative repressuring and flooding, etc.

"The profits to be derived from unitization are expected to come from three sources: First—decreased expense of development and operations. Second—increased recovery and more complete utilization. Third—better prices for the product through elimination of distress selling in times of overproduction. The work of the A.I.M.E. Committee is particularly the collection and presentation of the facts concerning the first and second expected sources of profit. Oil pools operated under single ownership are uncommon in the United States except on the Gulf Coast, but there are a number in foreign countries. Studies will be made of these unit-operated pools for comparison with other pools developed under competitive conditions in an attempt to arrive at some measure by which the economic advantages of unitization may be determined. The landowner who pools his holdings in a unit operation gives up his possibility of profit as the winner in the competitive fight and is entitled to know what benefits are likely to accrue to him as compensation for this forbearance. Are these savings really sufficient to warrant him in entering the project, or must he depend only upon the hope of increased recovery and higher prices? What are the facts concerning the increased ultimate recovery that is reputed to follow unit operation? Is such increase a logical sequence of unit operation or does the lack of competition merely make it possible to apply improved production methods which might bring about increased ultimate recovery?

Questions of Fact

"These are questions of fact for which the members of the A.I.M.E. may properly seek the answers. It is an engineering job and one for which we believe we are more competent than any other body of men. The unitization of oil pools is a big project involving many divisions of the petroleum industry. The rights of the landowners, the royalty holders and the lessees are affected; state or national legislation may be required; operating agreements must be devised which will take care of the changing prospectivity of adjoining acreage as the geological structure is made known by drilling; boards of appraisers and of operating engineers and geologists must be organized, and a multitude of other details require study and definition. There is plenty of work for a dozen committees on unitization from different organizations provided each will confine itself to that certain sphere in which it is most competent or will seek out and work upon phases of the problem that are not already being handled by a competent group.

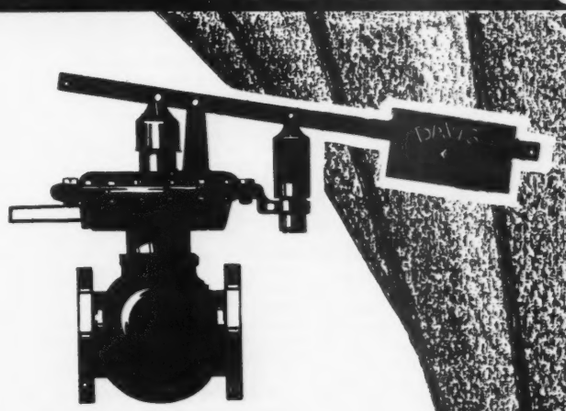
"There are disadvantages to unit operation as well as advantages. Men need the stimulation of competition if they are to do their best. Unitization may mean stagnation instead of progress. Shortsighted management may fail to take advantage of the opportunities for sound economy which are created by unitization. Theoretically, unit operation makes possible an increase in the ultimate recovery of oil by repressuring during the early life of the field but there are few, if any, places where the method is being used. The fact is that crude oil is, and has been for several years, so cheap and so abundant that it has not generally been considered prudent business practice to invest large sums in compressor stations and other equipment for a prospective increase in production at some considerably distant date. Improved production practices which have accomplished some conservation without much additional expense have been welcomed but the industry generally has not made up its mind to spend real money on improved extraction methods. We must use care in estimating the advantages of unitization lest we count a number of conservation chickens that have not yet been hatched.

In Foreign Fields

"Among the foreign fields, Venezuela contains several well known pools which are owned entirely by one company and which have been developed and operated without competition. Mene Grande is the oldest and most important, but El Mene, Concepcion and La Paz have been producing for a number of years. These pools are being studied to see if their development has been accompanied by a real saving of money and human effort over that which would have been expended in competitive development. Such a study involves a consideration of the factor of delayed return upon investment and may bring us face to face with that bugbear of 'compound interest' which drives the miner to the rapid extraction of his ore and the factory owner to cutting prices in order that his plant may operate full time and keep down the fixed charges per unit of output.

"Mexico offers us one of the best fields for comparative studies between competitive and non-competitive operations. The 'Golden Lane' is a 40-mile strip of oil bearing territory with remarkably uniform conditions of surface terrain, depth of holes and character of reservoir. Certain sections were developed under the wildcat or competitive conditions, while other parts, where the land was held in large blocks, were practically unit operations. By making proper allowances for differences in subsurface conditions it is believed that some very illuminating comparative studies can be made on development costs and ultimate recovery under the two contrasting conditions."

How to Regulate Nothing



ALTHOUGH "vacuum" to most people means practically nothing, its accurate regulation in individual wells is quite important to natural gasoline operators.

Davis Casinghead Gas Regulators have solved the problem of obtaining the desired vacuum in wells, regardless of the line conditions, for nearly every active natural gasoline manufacturer. If you do not yet have Davis regulators why not check up with the nearest user on these points:

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Suggest Changes in Natural Gasoline

Specifications Based on Volatility Would Aid Refiners in Blending and Give Manufacturer Control Over Output

S. S. Smith
Shell Petroleum Corp.*

I have been commissioned by the Natural Gasoline Association of America to give you, the Western Petroleum Refiners Association, a paper on Natural Gasoline Specifications. At the time of this assignment, it was expected that the Natural Gasoline Association should have finished their research into new specifications to cover natural gasolines. This work is not as yet finished, and it therefore devolves upon me to apologize for the incomplete condition of this paper. Some progress has been made, however, and that progress constitutes the substance of this paper.

Natural gasoline, as you know, came into existence as an accidental by-product in the production of oil and gas. At that time its only specification was the term casinghead gasoline of some particular gravity. Its early uses were principally for blending against gravity specifications, although large amounts were used directly as motor fuels in eastern states. It was inherently a product which could be used as a motor fuel, this being due to the inefficiency of the manufacturing processes which produced it, and the comparatively low volatility of the product produced. Then it was a popular motor fuel, although we did not know what particular characteristics made it successful. Now we know that its successful use was caused by its high antiknock quality, its extreme volatility which made for ease of starting and that same volatility which made for flexibility or snap. We know too, that since it was the product of inefficient manufacturing processes, the vapor pressure was low enough to not cause trouble due to gas lock or kindred troubles. This was the more possible because in those days we had no hot-spot manifold and high temperature jacketed carburetors.

History of Specifications

Later in the history of the business, when absorption gasoline plants came into being in Oklahoma and the Mid-Continent Field, and compression plants had their efficiency improved by somewhat more intelligent design, gravity as a specification became insufficient and there was born at this time a new specification—recovery. We find, therefore, that in July of 1921, the Association of Natural Gasoline Manufacturers published nine grades of gasoline designated alphabetically. In these specifications, the important points of consideration were—gravity, vapor tension, recovery and initial boiling point. In December of 1922 the number of grades was reduced to A, B, C and D. These had recoveries of 90, 85 and 78 with gravities ranging from 72 up to 92.

Improved plant design becoming a more and more important factor, we introduced a change in the method of distillation which provided for a 32-36 degree bath on the condenser and receiver. This occurred in 1924. Other specifications remained approximately the same, although the grades were increased to five, A, AA, B, BB and C. These grades were designed to reflect the difference in gravity and recovery which existed with varying types of plants and in production from fields producing oil of varying gravity. Again in 1927 we find that the association published five grades which reflected no change over the previous grades of 1924, except to raise the gravity on grade C to a maximum of 92 Baume. These then, are the specifications which are in force to date. They are as follows: Grade A, 72-79.9 gravity with recovery in excess of 90; Grade AA, 80-87.9 gravity with a recovery of 90; Grade B, 76-83.9 gravity with a recovery of not less than 85; Grade BB, 84-92 gravity with a recovery of not less than 85; Grade C, 80-92 gravity with a recovery of not less than 78.

Reviewing the picture, we find gravity specifications raised in 1924, at about the time stabilization or rectification of natural gasoline became a matter of interest to the industry, when the absorption process became current, and thoroughly efficient. The subsequent change in 1927 was to permit the inclusion of slightly higher gravity products in grade C, further reflection of increased efficiency of plant extraction from field gases. This picture exists today. We have five grades, two of which are especially designed to take care of high gravity, high recovery products produced by proper rectification of natural gasoline in the field.

Changes In Industry

Since the time of the last change of specification, there have come various changes in the industry which are disquieting to manufacturers of natural gasoline and to refiners. It has been necessary to revise our ideas as to what constitutes profitable operation. It has been necessary for us to learn to better economize in operation and manufacture. It has become necessary for you to derive more gallons of gasoline per barrel of oil, produced and delivered at your refinery gate. We now find ourselves manufacturing a product meriting consumption but we find consumption falling far short of production. We have come to assume therefore, that existing specifications do not encourage fullest use of our product. And with this thought in mind our association has embarked on new research into specifications which may encourage such use.

While you know, perhaps better than I, the individual constituents which make up natural gasoline, let us review them and get clearly in mind the merits of each constituent and the part it plays in the finished natural gasoline as you receive it. The range of products included in natural gasoline are the hydrocarbons, propane to octane, the chemical series C_3H_8 to C_8H_{18}, and in the Mid-Continent at least, all of the normal saturated compounds and their isomers, together with some of the cyclic compounds in this series. Of the series, we can dismiss from consideration here, the three octane, heptane and hexane as being of value primarily as solvents or retaining agents for pentane, butane and propane. The three products, octane, heptane and hexane you already have in refinery stock in large quantity. Our sale of such products to you is incidental to the sale of volatility represented by pentane, butane and propane. Pentane has a boiling point of 97° F. and a vapor pressure at 100° of approximately 1 pound; butane has a boiling point of 32° F. and a vapor pressure of approximately 37 pounds; propane, the lightest in the series, has a boiling point of —44° F. and a vapor pressure of approximately 180 pounds. Considered singly and separately, propane is a product which can be retained in high pressure cylinders at normal atmospheric pressure; butane can be retained in rather low pressure cylinders but requires pressure vessels; pentane can be carried around in a bucket like water. Hexane, heptane and octane must be vigorously heated to boil, and are entirely stable at normal temperature and pressure.

As you know, these products are extracted from natural gas by absorption or compression methods, which remove all of the octane, heptane and hexane, most of the pentane, part of the butane and a small amount of the propane, and the measure of percentage of the recovered products, pentane, butane and propane, is a measure of the efficiency of plant extraction. If we could conceive that the market would absorb all of the volatility which the natural gasoline manufacturer could build into his product, then the normal procedure would be to run the plant extraction efficiency as high as possible, store the product derived from such extraction in high pressure tankage, ship in high pressure tank cars and let the refiner blend under pressure.

This would enable the refiner to make the maximum gallonage of finished motor fuel from a minimum amount of crude oil. Since the market picture is different, it behooves us to look at the picture judiciously and decide that which is economic and to the best advantage of both refiner and manufacturer. In the preceding outline of characteristics of individual constituents, it would appear on casual inspection, that any refiner would desire a butane-free natural gasoline. That might perhaps be true, if the specifications of individual products as given were the sole and only specifications and qualities which these products possess. However, they have certain other and useful characteristics. Heptane, as you know, is used as a base standard for antiknock specifications, it having the lowest benzol equivalent of any of the normal volatile hydrocarbons. Speaking in terms of compression ratios, at which it can be operated without knocking, we find heptane will stand 3.75 compression ratio. Hexane, the next in the series, will stand 5.2 compression ratio; pentane, 5.85 compression ratio; butane, 7 compression ratio and propane 7.5 compression ratios. Speaking in terms of benzol equivalent, all of these except heptane are well above 50 per cent benzol. Since most motor fuels on the market have benzol equivalent not much in excess of 35 per cent, it can easily be seen that the blending value of natural gasoline against the detonant qualities of normal gasoline, is excellent. Its chief value, however, rests in its volatility.

On this score, propane, butane and pentane, all having volatilities of 100 per cent at 100 degrees, are excellent for the purpose of increasing startability, acceleration, etc. of your finished motor fuels. If we consider the blending value of each individual constituent in natural gasoline, and endeavor to work with these values, the blending operation becomes a complex one. Fortunately, it is not nearly so difficult. The prospect of analytical specifications for natural gasoline worried all manufacturers for some time. It is my understanding that there were even some contracts closed on the basis of analytical specifications, that is, that natural gasolines were to have certain percentages of pentane, butane or propane. This bugbear no longer exists. Intelligent natural gasoline manufacturers and refiners generally, now concede that there is no necessity for individual component specifications, but that the measure of usefulness of natural gasoline as finished blending stock, rests in some effective and proper measure on its volatility.

Distillation Analysis

The work which the association has done during the last six months on this subject points very strongly to the adoption of some such specification. Most of you will recall that Oberfell and Alden of the Phillips Petroleum Co., last year published an article covering the analysis of natural gasoline by A.S.T.M. distillation methods, and those of you who recall this work will undoubtedly agree

*General superintendent natural gasoline plants, Shell Petroleum Corp. Paper presented at manufacturers' meeting Western Petroleum Refiners Association, Shreveport, La., March 10-12.

MOST FOREIGN COUNTRIES PRODUCE LESS THAN SINGLE POOLS IN U. S.

By James McIntyre

So much has recently been said and written of foreign oil fields and their influence on the American oil industry that the average American oil man is in danger of getting exaggerated ideas as to how much these foreign countries produce. When we get them down to a comparative basis they don't loom very large.

Not only can America match her states against foreign countries in the matter of crude production and come out far ahead, but we can point to single pools that produced more oil last year than whole countries abroad, and two pools of California each of which produced more oil than the combined output of 16 foreign countries more or less prominent in the oil industry abroad.

The Bureau of Mines preliminary annual report published in The Oil and Gas Journal last week presented a table showing the estimated production of all oil-producing nations in 1929. The United States was shown to have produced 67.6 per cent of the world's production.

The accompanying table shows how American states ranked with foreign countries as oil producers, the figures being Bureau of Mines preliminary estimates.

The table indicates that three states in the United States produced more than 57 per cent of the world's oil output last year, with Venezuela the largest foreign producer, ranking fourth with a percentage of 9.2 and Russia coming right after Venezuela with a percentage of 6.9. Persia and Mexico produced about 3 per cent each with Kansas closely following with 2.9 per cent of the total.

Texas and California each produced 20 per cent of the world's total and Oklahoma 17 per cent. No foreign country approached any of the three leading American states in crude oil output.

Greater Seminole Exceeds Venezuela

The Greater Seminole Field in Oklahoma, including all the pools under proration for a part of last year, produced 144,801,000 bbls. in 1929, as against Venezuela's production of 137,000,000 bbls.

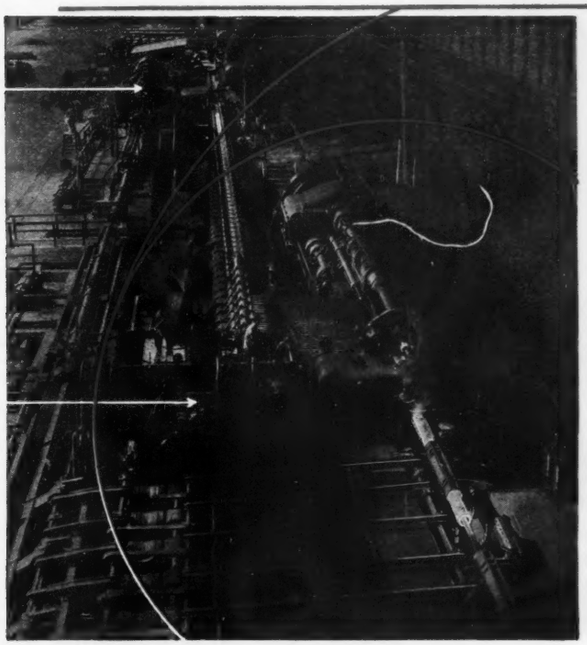
Russia's production of 103,000,000 bbls. is exceeded by the combined production of two California pools, Santa Fe Springs and Long Beach, which produced 136,973,000 bbls. The two California pools more than equaled the combined production of Russia and Colombia, which totaled 123,385,000 bbls.

Persia's production of 45,250,000 bbls. was exceeded by the production of the Hendricks Pool in West Texas (49,826,000 bbls.), and Mexico, which produced 44,689,000 bbls., was even farther below the record of the Hendricks Pool.

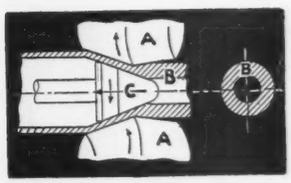
The production of the Dutch East Indies, 37,924,000 bbls., and Rumania's production of 34,930,000 bbls. are each several millions of barrels below that of

(Continued on Page 173)

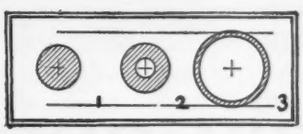
An Extra Step



Pictured are first and second piercers of the No. 2 J&L Seamless Mill at Aliquippa, Pa. All the heavy machinery circled in red is necessary to the second piercing.



Sketch showing, in cut-a-way form, the action of the second piercer in J & L Seamless Pipe manufacture. The rolls, "A" carry the tube, "B" over the second piercing, or expanding point, "C."



Development of cross-section in seamless tube manufacture: 1. Before piercing; 2. After first piercing; 3. After second piercing.

to Protect the Steel in J & L Seamless

IN producing all but the smallest sizes of seamless, J & L employs mill machinery that first pierces a small hole the length of the solid hot steel bar and then, in a second, or *extra operation,* enlarges this hole. By converting the solid bar into a tube by easy stages, J & L actually protects the steel against internal strains that, if permitted, would be detrimental to the finished seamless pipe. By this most advanced method of seamless manufacture, J & L also obtains, in the very first process, a tube of relatively uniform wall thickness.

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Also makers of Bars, Shapes and Plates, Reinforcing Bars, Cold Finished Steel, Junior Beams, Steel Piling, Fabricated Structural Work, Steel Barges, Wire Products and Tin Mill Products.

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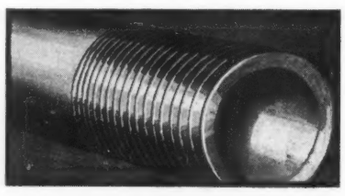
GILBERT & BARKER
Pipe Sealing Compound
FOR GASOLINE AND OIL PIPING
DIRECTIONS
Be sure threads are perfect and wiped clean. Apply compound to male threads only and make joint up tight. If compound becomes too thick it may be thinned by adding a little shellac. Use compound only for gasoline and oil piping, never on water steam or ammonia piping.
GILBERT & BARKER MFG. CO.
Springfield, Massachusetts, U.S.A.

Easily applied

..... it makes pipe joints tight .....

It takes only a few seconds to apply Gilbert & Barker Pipe Sealing Compound to all joints in all couplings, tees and elbows when installing gasoline oil handling equipment. But the protection it affords is as permanent as the line itself. Gas and oil cannot leak past joints sealed the G & B way. No chance for seepage. No stock losses. No expensive overhauling at some future date. Absolute protection for years to come.

Gilbert & Barker Pipe Sealing Compound comes in cans of three sizes; ⅛ pint for 15c, a handy size for the tool kit; pint for 75c, a good size for general shop use, and quart for $1.45, the size to keep on hand for supply.



Fill the male threads *only* with G & B Pipe Sealing Compound, after all threads have been thoroughly cleaned. No time wasted but you give non-crumbling, leak-proof joints to the entire line.

GILBERT AND BARKER
MANUFACTURING COMPANY
PUMPS AND TANKS FOR THE OIL TRADE
SPRINGFIELD, MASS.

Visible Gasoline Pumps, mechanical measure or sight measure, hand or air operated, equipped with the famous NULTRA *bowls. Also piston type pumps with visible discharge. Pump and tank outfits for motor oils, including the popular "NARRO-LUBE" type. Special pipe sealing compound for gasoline and oil pump and tank installations.*

finer buys AA gasoline, he will receive a product having little over 90 recovery and close to 87.9 gravity.

Vapor Pressure

Still when he receives such specification, there is possible a wide range of composition. Recovery is principally a function of vapor pressure, although vapor pressure does not necessarily define the composition.

This statement means, of course, that composition of gasolines having the same vapor pressure may vary widely. It also follows that vapor pressure is not necessarily indicative of blending value, although in an efficiently operated plant with proper rectification, vapor pressure is closely analogous to utility of product. We may express it this way, that vapor pressure is a useful negative specification, although not necessarily a useful positive specification. We have said before that volatility of natural gasoline is its chief asset.

that if you check this method against actual analysis, it is accurate within rather close limits. A year's use of the method among natural gasoline manufacturers has only necessitated correction of the curve at extremities, that is at the low and high percentage butane and pentane points. This indicates that it is easily possible to evaluate gasoline on its composition by means of A.S.T.M. distillation. Since this fits into Doctor Bridgeman's, Doctor Browns and the association's work, such a valuation must be sound in principle and practice. The old grades of gasoline, A, AA, B, BB, and C indicate practically nothing of composition and little of the blending value of such products. It is possible, for instance, under AA specification, to sell products having a range of butane content from 15 to 35 per cent and pentane content from perhaps 15 to at least 50 per cent. Since most of the gasoline made and sold is AA specification, it can easily be seen that the buyer of AA grade gasoline, on open spot market, is likely to get almost any kind of product.

If we concede that all manufacturers will crowd the top limit of specifications then the chances are that when the re-

If we concede that vapor pressure is not necessarily a measure of volatility, then some other measure becomes necessary. Recent government specifications covering finished motor fuels, both for aviation and motor use, stress the importance of the 10 per cent or the 122° F. point. Natural gasoline is chiefly useful as affecting these points. Vapor pressure and antiknock quality of the finished motor fuel can be calculated in advance of blending. As far as I know, no one yet has laid down effective rules for tying into the finished motor fuel specifications, the boiling points of natural gasoline.

Experiments which the association is now carrying on, however, indicate that it will be possible to blend to a fixed or predetermined 122 degree point, or to a fixed or predetermined 10 per cent distillation temperature, and prophesy with extreme accuracy the finished result. When this work is completed and released, we will have placed in the hands of all refineries, information which will enable them to use, with least possible effort, the largest amount of natural gasoline economically possible.

More Natural Gasoline

It is a point for discussion, of course, but after experimentally using a number of different fuels this winter in an automobile of standard make, which has no unusual characteristics of its own, I am thoroughly convinced that few refiners are yet using enough natural gasoline. By this I mean that most gasolines are not sufficiently volatile to give good motor performance in cold weather; I mean also, that they are not sufficiently volatile to start on cold mornings; I mean also that they are loggy, because they do not have sufficient volatility to give quick acceleration; I mean also that their antiknock qualities can be improved by the use of more natural gasoline. I was told just before leaving Tulsa for Shreveport, by one prominent Mid-Continent refinery chemist, that I was mistaken in this point of view, and that most refineries knew more about the use of natural gasoline than I had ever dreamed, and used it in far larger percentage than I suspected. I do not advocate excessive use of natural. I do advocate, however, that you use quantities of natural which will permit you to build into your gasoline vapor pressure as high as 8-10 pounds Reid. I would place as a possible limit on the use of natural gasoline, butane composition of 6-8 per cent in finished product. I would advocate always for motor performance that natural be used up to any point which will not give trouble due to vapor lock.

While this may already be done by refiners, I am firmly convinced that if so, some of you are not blending natural in such form that desired qualities can remain in the product. In other words, you are blending to vapor pressure rather than to volatility. I know that a great many motor fuels which I have used this last winter have certainly not had sufficient volatility to make decent performance, and that this condition can easily and cheaply be remedied by the use of natural.

Benefits to All

It is our opinion in the Natural Gasoline Association, that if we can provide specifications which will decrease the volatility of natural gasoline during times of excess production, and will increase the volatility of natural gasoline during times of shortage of production, which although remote are possible, then the economic benefit to you in the refinery and us in the natural gasoline business, will be two-fold. It will first provide you at low cost, large blending values during times of shortage of production, while permitting us the highest possible production during such time. It will also permit during times of excess production, the manufacture of lower volatile natural gasoline which can be used in larger quantities to achieve the same results, while permitting us to lower our output during such times of excess production. Specifications which would permit such reduction by volatility grades would perhaps tend to stabilize our industry while benefiting you in permitting higher gallonage use during low priced natural market.

Such specifications, too, fit into our proper definition of volatility so that such volatility definition can be intelligently used in advance of blending. In our Specification Committee work, consideration has been given to the 100° F. point, the 122° F. or 50° C. point and the 140° F. point. Difference in composition of additive percentages of butane and pentane is best reflected by the 122° F. point. Difference in pentane composition is best reflected by the 140 degree point. Difference in butane composition is best reflected by the 100 degree point. Difference in propane composition is best reflected by the vapor pressure. Our work does not yet indicate with certainty the point which best reflects the actual blending utility of the gasoline.

The natural gasoline industry is in the peculiar position of being the sole part of the oil industry which must continue to operate regardless of the market. The production from oil wells can be discontinued when they become unprofitable, or such production can be stored during times of unprofitable operation; refineries can, in times of duress, cease to manufacture any product, or they can curtail throughput while storing crude, or by not buying crude. The natural gasoline industry, in contrast to the oil producing and refining industry, is compelled to process its raw material when produced, and the production of such raw material is in the control of oil operators, not the natural gasoline manufacturers, therefore, we must continue to manufacture products or give up investment in plants.

The only means we have of curtailing production, then, is not by limiting purchase of gas and plant throughput, but by means of rectification, reduction of volatility, vapor pressure and gallonage by wasting the more volatile components of our natural gasoline.

Our industry is built on the salvage of an otherwise economic waste. The raw

material which we buy must be purchased on open contracts which compel up to take or pay for raw material whether we make a profit or not. Our product is sufficiently volatile to require expensive, high pressure storage, therefore it is almost incumbent on us to sell it when manufactured. Our industry therefore finds itself in a most vulnerable position at the hands of economic law. A few cars of distress natural gasoline can force the market below possibility of profitable operation. On the other hand, a slight shortage of natural gasoline can bring the market above that of refinery products.

We in the natural gasoline industry would much prefer prices related to refinery prices. We have no desire to force refiners to pay prices for our product which entail loss on his part, and we are not foolish enough to expect such price structure. We should like, however, and believe that it is economically proper and possible, to stabilize the price of natural against the price of refinery products, so that we can compute in advance with some measure of accuracy, market possibilities, and therefore can judge with some measure of success, the economic prospects of possible plants. If it is possible for us to so design our specifications that we can have the hearty support and co-operation of refineries in achieving such an end, then the association is repaid for its research.

We desire your advice as to what line to pursue. We recently sent out a questionnaire to some 56 refiners, covering their desires in the use of natural gasoline. The response to this questionnaire has been very gratifying, and of immense value to us in the Specification Committee's work. I will very much appreciate personally, any further suggestions you may offer, toward improving either the quality of our products, or the specifications under which said products are sold, and it is for such purpose that the association has requested me to deliver this paper.

FOREIGN PRODUCTION AND SINGLE U. S. POOLS

(Continued from Page 170)

the State of Kansas and far below the production of the Yates Pool in West Texas, which produced 41,734,000 bbls. under the severest curtailment.

A number of pools in the United States produced more oil than Colombia, the record of which was 20,385,000 bbls. The St. Louis-Pearson Pool produced 30,816,000 bbls., or over 10,000,000 bbls. more than Colombia. Little River, Oklahoma, with 28,909,393 bbls.; Ventura Avenue, California, with 20,934,000 bbls.; Midway-Sunset, California, with 25,311,000 bbls.; Earlsboro, Oklahoma, with 25,602,000 bbls., all exceeded Colombia's output.

Peru, with a record of 13,404,000 bbls., did not do as well as Chalk-Settles in West Texas with 14,826,000 bbls. or the Joe Bruner Pool in Southwest Texas with its record of 13,556,000 bbls. or Seal Beach in California with 14,418,000 bbls.

No less than 26 pools in the United States produced more oil last year than Trindiad, Argentina or British India, while all the production of Poland, 4,953,000 or 13,570 bbls. a day, was not sufficient to get an American pool into the select list of major pools.

Comparing some of the foreign countries with American states, we find that Persia, Mexico and Kansas are in the same class; Colombia, Louisiana and Wyoming may be grouped; Pennsylvania is between Peru and Trinidad, and Kentucky and West Virginia outrank British Borneo and Poland.

Santa Fe Springs in California was the largest individual pool in the United States last year. It produced 76,477,000 bbls. The combined production of Peru, Trinidad, Argentina, British India, British Borneo, Poland, Japan, Egypt, Ecuador, Sakhalin Russia, Canada, Iraq (Asia Minor), Germany, France, Czechoslovakia and Italy combined was only 58,396,000 bbls. The combined production of these 16 foreign countries is not only far below the production of Santa Fe Springs, but it is also below that of Long Beach in California with its 60,496,000 bbls. last year.

The production figures on individual American pools are taken from The Oil and Gas Journal's annual number, published January 30.

ESTIMATED CRUDE OIL PRODUCTION IN 1929 BY AMERICAN STATES AND FOREIGN COUNTRIES

(U. S. Bureau of Mines)

Rank, country or state—	Bbls.
1. Texas	298,441,000
2. California	292,037,000
3. Oklahoma	253,704,000
4. Venezuela	137,000,000
5. Russia	103,000,000
6. Persia	45,250,000
7. Mexico	44,689,000
8. Kansas	42,875,000
9. Dutch East Indies	37,924,000
10. Rumania	34,930,000
11. Arkansas	25,076,000
12. Colombia	20,385,000
13. Louisiana	20,229,000
14. Wyoming	19,190,000
15. Peru	13,404,000
16. Pennsylvania	11,805,000
17. Trinidad	8,810,000
18. Argentina	8,800,000
19. British India	8,470,000
20. Kentucky	7,776,000
21. Ohio	6,708,000
22. Illinois	6,304,000
23. Wst Virginia	5,587,000
24. British Borneo	5,277,000
25. Poland	4,953,000
26. Michigan	4,354,000
27. New York	3,346,000
28. Montana	3,183,000
29. Colorado	2,298,000
30. Japan	2,010,000
31. Egypt	1,866,000
32. New Mexico	1,689,000
33. Ecuador	1,351,000
34. Sakhalin Russia	1,160,000
35. Canada	1,133,000
36. Indiana	977,000
37. Iraq (Asia Minor)	798,000
38. Germany	711,000
39. France	516,000
40. Czechoslovakia	93,000
41. Italy	44,000
42. Scattered foreign fields	30,000
43. Tennessee	19,000
Total all fields	1,488,202,000

PRODUCTION OF ENTIRE FOREIGN COMPARED WITH PRODUCTION OF AMERICAN POOLS IN 1929

	Bbls.
1. Venezuela	137,000,000
2. Russia	103,000,000
3. Santa Fe Springs, Cal.	76,477,000
4. Long Beach, Calif.	60,496,000
5. Hendricks, Texas	49,826,000
6. Persia	45,250,000
7. Mexico	44,689,000
8. Yates Pool, Texas	41,734,000
9. Dutch East Indies	37,924,000
10. Rumania	34,930,000
11. St. Louis-Pearson, Okla.	30,816,000
12. Little River, Okla.	28,909,000
13. Earlsboro, Okla.	25,602,000
14. Midway-Sunset, Calif.	25,311,000
15. Ventura Avenue, Calif.	20,934,000
16. Colombia	20,385,000
17. Smackover, Ark.	19,666,000
18. Pampa, Texas	18,406,000
19. Huntington Beach, Cal.	16,007,000
20. Chalk-Settles, Texas	14,826,000
21. Seal Beach, Calif.	14,418,000
22. Joe Bruner, Texas	13,566,000
23. Peru	13,404,000
24. Bowlegs, Okla.	12,122,250
25. Seminole City, Okla.	11,291,330
26. Bradford-Allegany, Pa.-N. Y.	11,274,000
27. Spindletop, Texas	10,183,684
28. Borger, Texas	9,710,000
29. Elwood-Goleta, Calif.	9,436,000
30. Allen, Okla.	8,972,000
31. Church-Fields, Texas	8,916,000
32. Trinidad	8,810,000
33. Argentina	8,800,000
34. Inglewood, Calif.	8,768,000
35. Oklahoma City, Okla.	8,710,000
36. British India	8,400,000

WORLD NEWS STORIES OF THE KOHLER ELECTRIC PLANT—NO. 13

Actual photograph of Boston fire, floodlighted by Kohler Electric Plant

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THAT WALL IS CRACKING—
LOOK OUT!

WATCH those stairs . . . keep away from that hydrogen tank . . . turn some water on those cans. . . . When the flames crackle and roar through a doomed building, and smoke rolls up into the night, Boston's fire fighters swing into action *with light as well as water.*

A recent three-alarm fire in the leather district defied all efforts until Lighting Plant Unit No. 1 clanged up and turned darkness into day with its powerful floodlights. Many cities now use the same vital equipment for fighting fires—portable lights operated by Kohler Electric Plants. In other difficult assignments in all parts of the world, where delay may forfeit human lives, these compact and rugged units are on duty day and night.

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Kohler Electric Plants are widely used by petroleum engineers. For lighting derricks, shops, offices, loading platforms and pipeline stations . . . to supply auxiliary power to drill-presses, pipe-cutting machines and other apparatus where electric service must be dependable. These units furnish 110-volt current without storage batteries. Sizes: 800 watts, 1½, 2, 5 and 10 K. W.

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Texas Gross Production, Fourth Quarter 1929

The gross crude oil production of Texas of the companies making reports for the fourth quarter of 1929 is given below. The record is made up from the reports filed with the state comptroller.

A

Name and address—	Barrels	Value
Adamson, Peter, Jr., Tulsa, Okla.	414.00	$ 725.53
Andrews Petroleum Corp., New York, N. Y. (9-30-29)	4,385.70	4,535.85
Anchor Oil Co., Dallas	943.21	1,405.38
Allaun, William E.	.....	.....
Atlantic Keystone Petroleum Co., Bolivian, Fort Worth	1,245.23	1,120.71
Atlantic Oil Producing Co., Dallas	724,700.25	710,570.91
Antelope Creek Oil & Gas Co., Amarillo	9,044.85	8,195.99
Ascot Co., Wichita Falls	7,831.42	13,655.07
Ailes, J. W., Wichita Falls	655.50	1,055.35
Amerada Petroleum Corp., Tulsa, Okla.	290,075.01	299,470.09
Adams & Lyles, Lockhart (3-31-29)	5,790.70	7,643.72
Adams & Lyles, Lockhart (6-30-29)	4,798.79	6,382.39
Adams & Lyles, Lockhart (9-30-29)	4,302.34	6,453.51
Adams & Lyles, Lockhart (12-31-29)	2,733.84	4,128.09
Adams & Prince, Amarillo	26,056.79	37,395.85
Adams & McGahey, Amarillo	2,715.99	4,231.52
Arco Oil & Gas Co., Baltimore, Md.	8,315.17	13,844.71
Artex Oil Co., Wichita Falls	1,185.47	1,857.42
All-American Oil & Gas Co., Oklahoma City, Okla.	60.36	87.20
Alaska Petroleum Co., Amarillo	1,334.16	1,799.76
Ada Belle Oil Co., Batson	16,991.32	22,030.19
Arkansas Fuel Oil Co., Shreveport, La.	87,382.00	145,090.30
Atlas Oil Corp., Humble	2,038.00	2,648.00
Abraham, Earl, Bridgetown	835.57	1,409.30
Art & Taxman, Wichita Falls	4,862.31	8,026.90
Ames, E. W., et al, San Antonio (6-30-29)	99.34	146.55
Ames, E. W., et al, San Antonio (9-30-29)	83.20	126.67
Ames, E. W., et al, San Antonio	63.04	97.72
Ashe Syndicate, Fort Worth	1,031.46	1,607.72
Amicable Life Insurance Co., Waco	570.00	741.00
Arnold & Frazier, Putnam (3-31-29)	218.00	293.90
Arnold & Frazier, Putnam (6-30-29)	110.00	185.60
Arnold & Frazier, Putnam (9-30-29)	113.50	236.52
Arnold & Frazier, Putnam	124.75	212.04
Anderson-Drewery Corp., Cisco	2,697.00	4,223.98
Alamo Oil Co., Brownwood	394.00	571.00
A. & P. Production Co., Houston	35,834.85	44,435.21
American Refining Properties (R.M.W.), Wichita Falls	2,014.88	3,138.80
American Refining Properties (M.J.B.), Wichita Falls	3,046.73	4,787.05
American Refining Properties (N. B. Chenault), Wichita Falls	1,329.29	2,147.02
American Refining Properties (W.M.P.), Wichita Falls	7,330.90	11,433.11
Argus Oil Co., Inc., Brownwood	587.38	646.11
Alamosa Oil Co., Amarillo	13,696.15	12,733.64
Andrews, W. R., et al, Dallas	1,128.40	1,709.91
Apple-Brandeberry Oil Co., Wichita Falls	13,073.63	20,078.74
Arkinson & Sandefer Oil Co., Breckenridge	10,599.41	16,227.05
Abercrombie, J. S., Co., Houston	69,510.46	86,578.46
Anderson, Mac T., Rising Star	615.83	1,005.37
American Central Oil & Gas Co., San Antonio	89.50	97.02
American Refining Properties, Wichita Falls	56,522.33	69,745.85
Acorn Oil Co., Beaumont	10,365.08	13,403.63
Arab Gasoline Corp., Eastland	1,949.48	3,419.24
Amarillo Oil Co., Amarillo	1,084.38	1,116.91
Ama-Gray Oil Co., Amarillo	4,196.67	5,517.67
Aiworth-Stevens-Hild Co., New York, N. Y.	1,376.70	984.16
Abbott, R. W., Beaumont	1,602.77	2,083.60
Abbott, R. W., Beaumont (9-30-29)	1,728.25	2,246.73
Abbott, R. W., Beaumont (6-30-29)	1,703.10	2,104.51
Arco Oil Co., Wichita Falls	17,032.72	18,365.33
Andrews Petroleum Corp., New York, N. Y.	4,295.37	4,453.07
American-Maracaibo Co., New York, N. Y.	131,266.56	131,816.92
Archer Drilling Co., Wichita Falls	8,589.21	9,637.09
Adams, Dr. W. B., Wichita Falls	439.38	686.63

B

Belva Oil Co., Eastland (3-30-29 to 12-31-29)	208,798.78	8,103.77
Bruce, H. J., Wichita Falls (1-1-29 to 9-31-29)	6,687.75	9,134.71
Brazos River Gas Co., Wichita Falls	347.60	633.95
Bridwell & Mayfield, Wichita Falls	7,981.68	13,269.27
Burke-Greis Oil Co., Tulsa, Okla.	1,686.65	2,824.23
Bartlett Production, Rockdale	776.12	1,134.82
Bashara & Bashara, Waco (3-31-29)	186.00	223.20
Bashara & Bashara, Waco (6-30-29)	128.00	153.60
Bashara & Bashara, Waco (9-30-29)	280.00	308.00
Bashara & Bashara, Waco	160.00	176.00
Baker & Pardue et al, Breckenridge	7,547.33	11,991.87
Baker & Pardue et al, Breckenridge	2,182.62	3,482.26
Beasley Production, Electra	425.43	680.68
Burkburnett Production Oil Trust, Baltimore, Md.	819.72	1,314.11
Beggs, George, Fort Worth	2,468.38	4,577.48
Buttram, Frank, Oklahoma City, Okla.	1,486.23	2,292.20
Buttram Petroleum Corp., Oklahoma City, Okla.	40,131.12	70,847.53
Borealis Oil Co., Oklahoma City, Okla.	2,923.76	4,697.83
Bohner, C. J., Oil Corp., Burkburnett	9,555.87	14,706.03
Bohner, Grenshaw & Whitehill, Burkburnett	7,882.39	10,970.03
Bohner, C. J., et al, Burkburnett	7,270.78	11,666.16
Brownwood Producing & Refining Co., Brownwood	1,307.70	1,954.86
Burns, L. T., Wichita Falls	3,171.31	86,252.03
Brown, H. L., Fort Worth	6,372.25	7,965.31
Bezold & Young, Sheridan, Wyo.	1,352.51	2,096.41
Barnsdall Oil Co., Tulsa, Okla.	37,404.32	53,484.49
Buchanan, A. D., San Antonio	1,074.62	1,664.90
Bridwell Oil Co., Wichita Falls	83,267.32	114,852.77
Bridwell & Heydrick, Trustee, Wichita Falls	1,705.25	2,888.75
Brown & Lickey, Wichita Falls	761.33	1,186.81
Brannon & Murray, Cisco	3,036.00	5,235.80
Bell Oil & Gas Co., Tulsa, Okla.	21,299.30	25,069.40
Bradstreet, L. G., Co., Fort Worth	52,541.95	80,401.77
Badger Oil Co., Amarillo	11,031.77	17,666.44
Bailey, Fannie, Wichita Falls	107.75	174.81
Bulcher Oil & Gas Co., Gainesville	.....	.....
Britton & Gordon, Strawn	594.29	977.97
Baker, James Blair, Jr., & C. F. Camp, Wichita Falls	31,407.47	45,367.21
Baker, James Blair, Jr., & C. F. Camp Tr., Wichita Falls	4,181.12	6,145.20
Brooks & Hanlon, Inc., Tulsa, Okla.	792.63	1,108.02
Bryson Oil & Gas Co., San Angelo	21,186.00	36,730.00
Black Cat Oil Co., Electra	853.11	1,295.31
Bailey, Carl B., Wichita Falls	6,536.46	10,696.47
Bailey, Mrs. Fannie, Wichita Falls	558.61	893.77
Big State Oil Corp., Dallas	3,637.17	5,467.27
Bexata Oil Co., San Antonio	1,274.88	1,581.74
Big Lake Oil Co., Pittsburgh, Pa.	1,038,473.85	1,442,191.16
Brady Brothers, Minerva	987.65	1,438.37
Bowman Oil Co., Rockdale	724.79	1,079.94
Butler & Perkins, Olney	444.61	652.51
Buell & Hagan, San Angelo	664.61	518.39
Beaver Oil Corp., Oklahoma City, Okla.	8,314.65	10,556.16
Black Diamond Oil Co., Amarillo	.....	.....
Bowers Oil Co., Vernon	1,264.48	1,900.67
Brain, Mrs. M. L., Humble	345.22	448.22
Bashara, J. F., Houston	6,455.75	8,392.46
Bennet, Fred T., Tr., Mexia	199.67	289.51
Beams, Drew, Okmulgee, Okla.	2,149.84	3,309.18
Boardman & Ulrich, Corsicana	1,280.00	1,920.00
Bourbon Royalty Co., Dallas	2,305.51	3,124.92
Brownlee-Pope Oil Co., Austin	2,454.16	3,210.40
Brown, A. J., Fort Worth	592.42	972.43
Biel, William N., Van Orny	24.00	31.20
Bullington, Lee, Pendleton & Bullington, Wichita Falls	13,360.20	21,185.85
Bohner, C. F., Kansas City, Kans.	63.00	88.20
Blair & Kell, Dallas	552.21	713.73
Bluebonnet Oil Co., Wichita Falls	836.90	1,368.69
Biggs Oil & Gas Co., McKinney	886.00	1,507.23
Burton, McKee Oil Corp., Strawn	516.43	783.71
Breckenridge Gasoline Co., Toledo, Ohio	.....	.....
Barnes, J. B., Electra	13,621.25	19,182.34
Bruce, A. D., Brownwood	522.69	607.77
Bass & Dillard, Wichita Falls	4,010.88	6,333.86
Boller, C. W., Wichita Falls	8,827.46	14,712.91
Big Indian Oil & Development Co., The, Gainesville	1,122.03	1,795.25
Brown-Guinn, Wichita Falls	303.12	492.96
Bynum, W. W., Estate, Rockdale	886.13	1,320.32
Bell, E. S., Wichita Falls	9,541.02	16,283.58
Barbara Oil Co., Chicago, Ill.	5,021.68	8,990.49
Baldwin, F. C., et al, Fort Worth	1,442.82	2,423.93
British-American Oil Producing Co., Tulsa, Okla.	6,225.32	9,925.05
British-American Oil & Gas Co., Tulsa, Okla.	722.51	1,094.87
Bonner Co., Wichita Falls	18,379.39	29,584.12
Black, W. A., Midland	890.53	1,112.56
Bruce, H. J., Wichita Falls	2,123.85	3,503.83
Bartlett, William, & Co., Electra	332.50	578.69
Brown Farm Oil Co., Wichita Falls	3,099.97	5,268.37
Bluebonnet Petroleum Corp., San Antonio	785.67	961.31
Bynum & Palmer, Rockdale	158.90	239.81
Baker, J. F. and H. E., Breckenridge	1,880.00	2,736.00
Baker, Mollie B. and Fred R., Breckenridge	1,088.00	1,632.00
Baker, J. A. and Mollie B., Breckenridge	6,572.00	11,200.80
Bayless A. A., Breckenridge	1,041.34	1,710.54
Benedum-Trees Oil Co., Pittsburgh, Pa.	25,457.64	17,820.34
Bullington-Clark et al, Wichita Falls	5,681.54	6,152.04
Bevering, A. H., et al, Henrietta	1,396.89	2,087.47
Brown, Dr. E. W., Estate, Orange	738.72	960.27
Brown, Mrs. Carrie L., et al, Orange	20,680.42	26,884.49
Burkburnett, Jr., Oil Co., Fort Worth (6-9-12 ¼s 1929)	700.19	1,040.77
Baird Oil Co., Putnam	177.00	230.10
Breeding & Hutson, Rising Star	1,349.87	2,107.62

C

Continental Oil Co., Ponca City, Okla.	2,635,750.26	2,995,478.84
Carson, Usher, Laredo	3,664.57	3,298.11
Cuno, Mrs. Bertha, Moran	2,119.98	2,350.17
Comet Petroleum Co., Fort Worth	3,351.51	3,153.87
California Co., Dallas	1,911,891.00	1,768,567.18
Central Texas Refining Co., Corsicana	14,170.60	21,437.56
Comet Petroleum Co., Fort Worth (9-30-29)	5,035.96	4,962.10
Castlebury, S. A., Vernon	419.12	598.57
Cox, Edwin, B., Ardmore, Okla.	2,269.73	3,599.25
Clear Lake Oil Co., Rockdale	1,045.44	1,557.67
Callihan, George, & Carter Development Co., Albany	1,265.00	1,786.70
Cable Oil Co., Wichita Falls	2,156.94	3,395.33
Carey, E. S., et al, Wichita Falls	143.24	171.89
Carey, E. S., et al, Wichita Falls	767.56	1,082.26
Cushing Refining & Gasoline Co., Cushing, Okla.	7,353.07	6,911.89
Conner, Son & Cloughley, Gotebo, Okla.	9,653.97	15,741.96
Chapman, O. H., Waxahachie	215.39	291.82
Culberton Co., Wichita Falls	10,926.41	18,115.79
Camp Oil & Gas Co., Wichita Falls	953.94	1,486.42
Clarkson, William, Jr., Corsicana	3,654.27	5,706.51
Central Oil Co., Cameron	3,609.21	4,521.66
Cosa Oil Co., San Antonio	285.82	487.87
Canyon Oil & Gas Co., Inc., Cross Plains	2,783.16	4,052.20
Craig & Lowrie, Pittsburgh, Pa.	1,324.66	1,606.64
Cashdollar & Snyder, Brownwood	163.40	220.59
Cristie Brothers, Wichita Falls	5,969.20	9,528.25
Currie Oil Corp., Washington, D. C.	552.00	810.73
Crenshaw, Albert, Wichita Falls	1,103.18	1,867.82
Canary, S. C., et al, Tulsa, Okla.	542.45	859.20
Coline, Oil Corp., Oklahoma City, Okla.	12,194.98	19,498.55
Caruthers Co., San Antonio	1,364.79	1,585.89
Cockrell-McIlroy Oil Co., Amarillo	12,636.19	13,426.68
Church & Weekley, Fort Worth	73,570.86	64,098.89
Chenault, W. L., Amarillo	564.40	928.67
Carlin & Tobin, Ranger	408.62	711.00
Carlin, W. W., Ranger	1,535.82	2,687.68
Cisco Oil Co., Tulsa, Okla.	22,711.57	30,946.71
Coffield & Hale Oil Co., Rockdale	1,780.69	2,631.19
Chestnut & Smith Cor., Tulsa, Okla.	6,481.08	10,098.94
Coltex Oil Co., Spokane, Wash.	320.27	368.33
Crabb & McNeel, San Angelo	4,196.47	5,483.48
Curtis, James A., Wichita Falls	1,693.21	2,786.03
Capitol Oil Co., Orange	192.16	249.81
Chalk, Mary and Otis, Big Spring	5,220.31	4,736.52
Camel Oil Co., Pampa	10,442.25	17,383.61
Clem Oil Co., Houston	433.50	433.50
Cranfill Brothers Oil Co., Wichita Falls	3,397.21	5,605.40
Crosbie, J. E., Inc., Tulsa, Okla.	6,066.72	6,049.02
Champlin Refining Co., Enid, Okla.	103,457.86	140,942.78
Carson, Usher, Laredo	2,893.71	2,564.34
Crosscut Corp., The, Fort Worth	578.30	983.12
Cosden Oil Co., Fort Worth	222,783.28	240,942.99
Cowling & Newell Oil Co., Burkburnett	233.98	330.64
Crown Central Petroleum Corp., Houston	47,122.47	42,410.23
Crown Oil & Refining Co., Houston	12,080.27	15,704.35
Cullen & West Production Co., Houston	6,946.50	9,030.40
Cullum, F. P., Wichita Falls	2,687.82	3,981.03
Conway Brothers and Champion, Ranger	571.97	746.95
Conway Brothers, Ranger	1,465.32	2,627.60
Center Field Oil Co., Amarillo	819.34	860.31
Cosden, J. S., Inc., Fort Worth	3,665.16	5,461.09
Cromwell, Carl G., San Angelo	8,197.63	7,386.17
Consolidated Oil Co. of Texas, Wichita Falls	68,101.33	100,165.73
Corpus Christi Oil Co., Corpus Christi	421.20	379.08
Charter Oil Co., Brownwood	11,757.48	19,965.37
Carter, Roy I., Wichita Falls	19,479.63	19,864.48
Collins, W. P., Breckenridge	780.68	1,148.02
Corvette Oil Corp., Fort Worth	5,003.99	4,997.13
Cranfill Brothers Oil Co., Dallas	58,123.43	51,198.75
Carey, C. W., Wichita Falls	3,584.41	5,287.00
Clark, R. R., Wichita Falls	12,963.73	20,971.29
Coppock & Coleman, Iowa Park	11,089.60	18,136.86
Cunningham, J. C., Graham	1,483.87	2,060.81
Callihan, George, and Carter Development Co., Albany	429.40	649.60
Cole, W. C., Wichita Falls	1,314.45	2,072.08
Cohen, Aaron, Baltimore, Md.	8,819.05	15,361.90
Chapman, P. A., Estate, Waxahachie	12,477.98	17,789.30
Cullen, H. R., et al, Houston	10,677.93	12,920.29
California-Eastern Oil Co. and Julian Petroleum Corp., G. C. Dunn, receiver, Dallas	4,758.34	4,870.14
Cranfill-Reynolds, Co., Dallas	326,455.88	397,306.05
Curry, E. M., Cross Plains	2,057.27	3,621.86

(Continued on next page)

These 3 features are found only on

W-K-W SAFETY CONES

(FORMERLY "VARCO")

1 The Safety Bushing

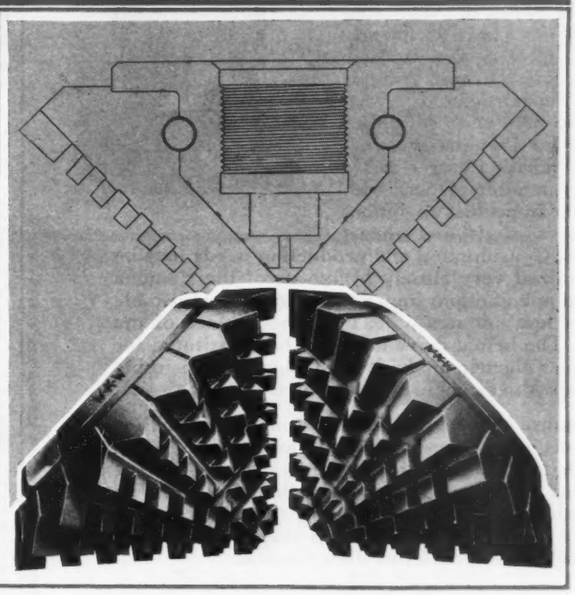
Of the thousands of sets used not one W.K.W. Cone has been left in the hole. The bushing is held to the cone by a piece of alloy steel rod which forms an unbreakable, yet flexible connection.

2 The Ease of Assembly

The exclusive method by which W.K.W. Cones are assembled and removed from the bit entirely eliminates cutting them off, as is so common with other types.

3 The Mounting of Cones

The design of W.K.W. Cones is such that the teeth do not wear out by riding each other. All wear on the teeth comes from contacting formation, and maximum footage is obtained from every cone.



W.K.W. Cones are slush lubricated. The advantages of slush lubrication in the W.K.W. Cones are many, the most important advantage being the elimination of a mechanical lubricator. Time is saved in assembly as it is not necessary to have extra joints of drill pipe with extra connections to take care of a lubricator.

W.K.W. Cones are hard faced. The outside bevels on the cones are stellited, thereby keeping them to gauge much longer than would be possible by merely heat treating.

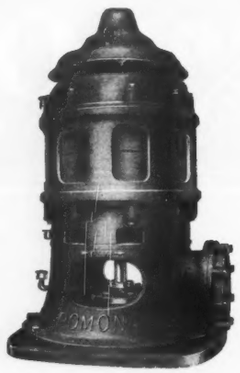
W-K-W SAFETY CONES

"GO STRAIGHT THROUGH THE EARTH"

WIEMAN-KAMMERER-WRIGHT CO., INC.

Hollydale [Los Angeles Co] California

WATER FOR *every* OILFIELD *or* REFINERY *need* . . . .



THE problem of water production for all refinery or oil field purposes is completely solved with the Pomona Super-Industrial Turbine Pump. Greater condenser efficiency is obtained when subterranean water, frequently many degrees colder, is used. The Pomona Turbine Pump is ruggedly constructed of fewest parts and nothing to get out of order. The Pomona-Westinghouse Unidrive Pump Head is built as an integral part with the motor in perfect alignment with drive shaft and thrust bearings. Consumption and production needs may be synchronized very closely by means of the Pomona patented open-bottom impellers which are adjustable in but a few minutes time, from the surface of the ground. The belted drive head can be substituted for the regular electric unidrive head when it is desirable to drive with gas engines or tractors.

The expense of trucking water to isolated oil drilling operations is unnecessary. Wells as small as 4" in diameter may be drilled into the first water-bearing strata and a Pomona Turbine installed, producing an independent and economical supply of water ready at all times. Our Engineering Department will furnish specifications and bulletins upon request.

Distributors:

Southern Engine & Pump Co.
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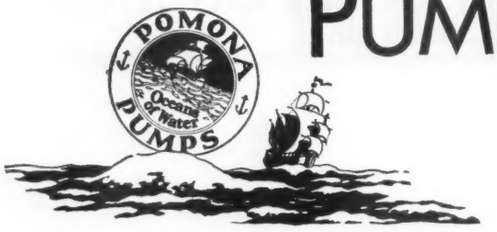
Houston, Texas

Menge Pump & Machinery Co.
862 Tchoupitoulas St.
New Orleans, La.

POMONA PUMP CO.
Pomona, California

POMONA PUMPS



Name and address—	Barrels	Value
Collins, J. L., & Co., Corsicana	463.51	682.77
Collier, Dr. J. W. and wife, Mabel, Markley	224.38	297.98
Chandler, G. B., Bryson	984.62	1,276.37
Clark-Buffalo Oil Co., Inc., Buffalo, N. Y.	1,164.01	1,811.61
Columbia Petroleum Co., Laredo	4,516.00	4,064.40
Campbell, R. S., Humble	627.91	800.70
Clay, J. D., Houston	1,815.18	2,198.69
Campbell, Alma, Fort Worth	1,187.72	1,835.18
Caudle, Fifer, Rockdale (7-1-29 to 12-31-29)	306.00	956.25
Cunningham & Lynch, Graham	4,414.02	6,399.60
D		
Duke, W. R., Wichita Falls	9,835.28	12,653.67
Derby Oil Co., Wichita, Kans.	14,831.38	19,891.97
Dalton Bell Oil Co., Mineral Wells	1,303.00	1,737.30
Dunigan Brothers, Breckenridge	1,166.59	1,500.77
Dale & Crawford, Electra	637.08	1,048.77
Developers Oil & Gas Co., Wichita Falls	654.00	1,080.22
Duffield & Howard Oil Co., Tulsa, Okla.	508.56	667.63
Davis, Caroline A., Somerset	321.04	385.24
Deutser, B., Tr., Beaumont	1,899.06	2,468.78
Dixie Drilling Co., Fort Worth	25.08	37.62
Dale, Jack B., Wichita Falls	3,325.52	5,437.83
Dye & Gillette, Tulsa, Okla.	11,958.86	18,967.65
Danciger Oil & Refining Co. of Texas, Fort Worth	455,927.26	642,219.24
Dixon Creek Oil Co., Amarillo	50,308.40	63,389.62
Dallas Petroleum Co., Houston	610.07	1,088.04
Dale-Knotts Oil Co., Wichita Falls	240.51	408.85
Davis Oil Corp., Vernon	51,462.15	76,431.70
Dominion Oil Co., Tulsa, Okla.	1,055.04	1,577.25
Davis & Wallace, Chandler lease, Minerva	313.56	467.36
Davis & Wallace, Smith lease, Minerva	308.40	447.18
Douglas Brothers Oil Co., Electra	1,181.47	3,602.75
Douglas Brothers and Johns, Electra	505.71	821.55
Douglas Production Co., Electra	1,507.96	2,359.86
Dennis, J. S., Moran	1,511.66	2,184.64
Devonian Oil Co., Tulsa, Okla.	24,662.66	33,236.62
Derby Petroleum Corp., Tulsa, Okla.	23,571.57	37,734.36
Dayton Oil Co., Dayton	117.08	152.20
Dunway, J. E., et al, Wichita Falls	8,272.02	12,340.29
Duquesne Oil Corp., Eastland	279.68	463.46
Dean Oil Co., Burkburnett	518.24	746.27
Dalton Jack Oil Co., Fort Worth	1,418.44	2,240.57
Derby Oil Co., Wichita, Kans.	3,435.38	4,222.76
Derby & Haines, Wichita, Kans.	5,852.06	7,188.64
Dunigan et al, Pampa	673.94	793.63
Dorian, R. P., Wichita Falls	16,154.70	24,524.45
Dixie Oil Co., Inc., Tulsa, Okla.	112,811.31	109,947.61
Douglas Oil Co., Tulsa, Okla.	11,624.39	17,852.44
Den Wich Oil Co, Abilene	1,074.36	1,654.32
Deering, John A., Houston	10,330.30	14,390.85
Davis, Beatrice H., Tulsa, Okla.	4.00	4.87
Davis, Louise Reyman, Tulsa, Okla.	4.01	4.86
Delmar Oil Co., Bartlesville, Okla.	52,108.40	77,437.56
Double Five Oil Co., Amarillo	.....	.....
Derby, Haines & Williams, Wichita, Kans.	1,397.66	1,462.21
Dudley, G. S., Iowa Park, Route 2	1,575.41	2,618.40
E		
Emerald Oil Co. of Texas, Winfield, Kans., and Abilene, Tex.	3,196.61	3,124.64
Ellis & Lancaster, Beaumont (9-30-29)	846.15	1,100.01
Ellis & DuBose, Fort Worth	1,117.52	1,481.97
East Batson Oil Co., Batson	12,736.25	16,557.14
Elrod, Beabout & Sullivan, San Angelo	5,839.77	8,218.80
Eddy Oil Co., Beaumont	1,025.26	1,332.83
Eubank, R. O. and B. K., Cross Plains	1,123.04	1,780.58
Ernest Oil Co., Rockdale	385.50	574.40
Eggers, J. E., Tr., San Antonio	551.31	661.58
Eumo Oil Corp., Abilene	1,158.13	1,449.31
El Rio Oil Co., Amarillo	395.12	414.88
Eddleman & Payne, Inc., Wichita Falls	5,331.55	8,873.38
Erie Investments Limited of Texas, Toronto, Canada	592.00	702.80
Ellis & Anderson, San Antonio	85.91	104.04
Engel, E. A., Albany	4,425.39	7,085.76
Electra Production Co., Inc., Electra	828.57	1,325.70
Eastland Oil Co., Fort Worth	109,786.75	139,285.30
Empire Gas & Fuel Co., Bartlesville, Okla.	604,639.86	843,472.60
Erlewine, A. J., Wilson, Okla.	965.58	1,164.14
Edmondson, J. M., San Antonio	1,231.60	1,539.35
Elrod, Beabout & Sullivan, San Angelo	6,312.59	9,113.16
Ebberts, Folloure & Hebert, Beaumont	1,722.45	2,237.88
Easton, E. S., Wichita Falls	873.29	1,410.64
F		
Freeman-Hampton Oil Corp. "A" & "B" Ls., Wichita Falls	6,402.06	9,969.83
Freeman, J. H., Henning Ls., Wichita Falls	5,700.00	8,899.08
Fountain Production Co., Saratoga	2,181.03	2,835.33
Fisher, J. A., Wichita Falls	918.20	1,540.37
Falls Production Co., Wichita Falls	3,655.62	5,849.66
Fultz, W. B., et al, Graham	5,543.86	8,413.01
Ferguson, W. R., Wichita Falls (9-30-29)	618.12	998.97
Fox & Adams, Burkett	15,153.34	17,160.51
Fritz Fuchs, Taylor	224.00	323.00
Fresno Oil Co., Wichita Falls	30,612.28	47,755.16
Ferguson & Watson, Electra	1,104.44	1,822.37
Four Oil Co., The, Wichita Falls	1,621.98	2,463.68
Fogle Oil Co., Kinzua, Pa.	596.36	863.62
Fort Bend Oil Co. and agents for others, Houston	22,768.40	28,487.21
Franklin, Wirt, Ardmore, Okla.	507.38	833.77
Forest Oil Corp., Tr. Acct., Luling	8,541.70	10,677.12
Farish & Ireland lease, Houston	6,361.54	8,270.00
Frontier Oil Co., San Antonio	10,356.60	13,991.43
Forster, A. R., Ooleman	152.00	235.60
Fain-McGaha Oil Corp., Wichita Falls	543,862.76	834,784.60
Farlyn Oil Co., Houston	13,007.60	11,061.35
Flynn, W. B., Beaumont	4,871.53	6,131.30
Finston, Mark, special acct., Tulsa, Okla.	11,700.63	16,985.12
Fleming & Kimbell, Sherman	4,170.60	4,097.35
F. H. E. Oil Co., Sherman	26,325.90	39,715.96
Foster, Elrod & Tucker, San Angelo	937.61	1,473.10
Foster, Elrod & Tucker, San Angelo	627.73	940.16
Faith Oil Corp., Wichita Falls	322.65	271.37
Faith Oil Corp., Wichita Falls	38.52	40.46
Fulton, Tom, Wichita Falls	1,382.63	2,327.51
Ferguson, W. R., Wichita Falls	625.37	1,027.15
G		
Gray, K. C., lease, Holiday	416.72	590.06
Guaranty Oil Co., Electra	71.84	115.26
Golding-Phillips Oil Co., Amarillo	505.87	505.87
Gopher Oil Co., Amarillo	1,502.92	2,244.56
Green, W. J., et al, Wichita Falls	321.60	396.23
Gibson & Cardwell, Wichita Falls	607.33	971.72
Grisham, W. J., Wichita Falls	419.25	622.46
Gibson & Johnson (Inc.), Fort Worth	46,486.59	84,796.17
Grisham-Hunter Corp., Abilene	2,564.28	3,661.85
Green, James H., & Co., Inc., Houston	206.53	314.18
Gwynn, P. F., Wichita Falls	1,351.44	2,297.37
Goodwin, P. B., Tr., Breckenridge	4,703.59	4,340.12
Goodwin, P. B., et al, Breckenridge	919.93	1,379.90
Grayburg Oil Co., San Antonio	182,325.19	170,700.04
Golden West Oil Co., San Antonio	23,181.64	23,634.77

(Continued on next page)

Name and address—	Barrels	Value
Gaither Production Co., Rockdale	765.92	1,141.22
Gates Oil Co. (Wyoming Corp.), New York, N. Y.	4,034.41	4,806.05
Gallagher & Lawson, Desdemona	510.31	667.64
Golding & Cochran, Wichita Falls	59,767.63	92,639.82
Golding, Dudley S., Wichita Falls	36,543.52	36,543.52
Graham & Lash, Cisco	883.52	1,274.46
Greene & Owens, Brownwood	951.53	1,681.14
Greene Production Co., Fort Worth	47,618.53	65,542.15
Gillman Brothers, Amarillo	1,477.61	1,852.89
Gohlke, F. H., Wichita Falls	84.00	101.66
Gilman & Conway Brothers, Ranger	4,416.26	8,019.38
Gorsuch Oil Co., Abilene	2,235.31	3,393.18
Gates & Nutt, Wichita Falls	1,333.67	2,267.24
Gillette, C. W., J. M. and N. B. Feagin, Tulsa, Okla.	2,331.12	4,108.89
Gardner, Wilson & McCaldin, Wichita Falls	1,055.86	1,519.85
Grayce Oil Co., Wichita Falls	19,420.92	30,634.91
Gainesville Oil & Development Co., Gainesville	721.68	814.37
Gainesville Oil & Developing Co., Gainesville (9-30-29)	1,126.78	1,270.56
Gwynn, P. F., Ind. and Agt. for J. F. Boyd and Tom Corridon, Wichita Falls	1,035.81	1,761.80
Gwynn-Boyd Drilling Co., Wichita Falls	11,408.37	18,651.57
Green, James H., & Co., Inc., Houston	513.20	797.80
Gibson Oil Corp., Amarillo	42,277.54	49,369.11
Graham & Harrison, South Bend	4,344.12	6,894.51
Gray & Adams, Inc., Gainesville	2,016.00	2,335.20
Gultex Production Co., Waxahachie	2,102.39	3,468.93
Glenridge Oil Corp., St. Louis, Mo.	3,571.78	5,602.26
Gilbert Co., Beaumont	6,615.08	8,599.82
Glodis Oil Co., Saratoga	3,569.99	3,867.47
Granite Oil & Gas Co., Ridgway, Colo.	446.58	771.17
Gates-Bacon-Lea, Wichita Falls	4,784.26	7,185.00
Gordon Oil Co. of Texas, Logan, Ohio	76.04	117.86
G. & K. Production Co., Fredericksburg	1,235.23	1,578.20
Gordon, Ann B., Oil Co., Inc., Dallas	18,019.21	31,344.80
Gibson Oil Corp., Amarillo	39,474.42	51,981.46
Godfrey, F. L., Enid, Okla.	58.00	89.39
Guthrie, Cole & Ferguson, Wichita Falls	620.91	931.38
Grisham, V. I., Wichita Falls	2,569.38	3,532.12
Gin.er-Jones Oil Co., San Antonio	465.89	604.34
Ginter-Lange Oil Co., San Antonio	1,371.42	1,840.53
Gilman & McMurray, Cisco	3,866.31	6,919.28
Godley Oil & Gas Co., Dallas	32,306.04	36,917.13
Gandy & Peyton, Wortham	2,131.46	2,690.55
Group No. 1 Oil Corp., Big Lake	481,772.86	816,179.92
Goldsmith, N. D., Olney	19,270.26	27,658.63
Grady, D., T. W. Roberts lease, Electra	664.59	1,055.03
Grady, D, Electra	468.16	814.62
Gulf Production Co., Houston	7,384,799.29	8,199,618.66
Gates Oil Corp., Ardmore, Okla.	2,672.07	4,644.06
Galvez Oil Corp., Tulsa, Okla.	5,074.76	7,856.86
Gilliland, C. W., Wichita Falls	2,726.66	4,367.31
Gunn Production Co., Cross Plains	915.88	1,287.41
Gilliland-Rosser Oil Co., Wichita Falls	13,791.01	22,360.83
Grayback Development Corp., Wichita Falls	48,665.92	72,099.60
Grassroots Oil Co., Fort Worth	1,333.85	2,121.98
Glass Brothers, Rosebud	673.32	976.31
Gholson, John M., Ranger	5,618.32	8,446.45
Guernsey Oil & Gas Co., Pampa	1,752.83	2,088.42
Goldelline Oil Corp., Oklahoma City, Okla.	8,314.65	10,556.16
H		
Hammunn Oil Co., Eastland	291.00	491.25
Hickok Producing & Development Co., Toledo, Ohio	781.17	781.17
Houseman, D. H., & Co., Dallas	31.24	47.11
Hardy Oil Co., Wichita Falls	2,170.34	3,592.16
Hart Oil Corp., Fort Worth	973.70	1,625.77
Hughes, J. K., Development Co., B. K. Isaacs, receiver, Fort Worth	1,262.00	1,523.98
Hemby, J. M., Electra	866.32	1,398.09
Hueber, J. M., Co. of Louisiana, Borger	1,740.55	1,731.02
Howard Petroleum Corp., Tulsa, Okla.	770.63	1,021.43
Hefley, McIntosh & Thomas, Cameron	585.41	744.46
Hamilton & Martin, Wichita Falls	1,457.36	2,273.48
Hedrick-Camp Drilling Co., Wichita Falls	11,488.52	16,629.80
Hitchman & Howard, Inc., San Antonio	2,191.65	2,881.60
Holmes & Huey, Whitenburg	1,777.95	2,169.10
Home Oil & Gas Co., Inc., The, Albany	1,494.41	2,170.43
Hamilton, W. L., Bridgetown	989.37	1,780.88
Hamilton, Walter R., Trustee, San Antonio	4,975.69	7,266.30
Hi-Land Oil Co., Wichita Falls	22,354.14	37,920.26
Hawley, J. A., Guardian, Kevin Hawley, Ottawa, Canada	246.99	362.28
Harper Petroleum Corp., Bryson	83,118.27	143,900.69
Humble Oil & Refining Co., Houston	7,647,340.00	9,452,020.30
Hobbs, Henry, Wichita Falls (9-30-29)	4,160.65	6,758.00
Hueco-Ranger Oil Co., El Paso (9-30-29)	333.45	481.69
Harper Petroleum Corp., Mineral Wells (9-30-29)	66,405.02	116,573.85
Hawkins, W. L., Wichita Falls	2,494.51	4,090.28
Holloway, R. R., receiver, Brownwood	1,862.87	2,812.93
Houghland Production Co., Dallas	4,643.70	5,492.44
Handrick, Aug., Moran	129.89	162.36
Hickey, T. J., et al, Corsicana	60.72	91.08
Hambleton, George, San Antonio	404.43	505.55
Howard, Duffield & Berlin, Tulsa, Okla.	1,111.72	1,464.57
Hampton & Wilson (Hadley lease), Wichita Falls	106.51	149.09
Humphreys Corp., Houston	438,040.44	540,608.90
Holmes, Huey & Holmes, Amarillo	17,104.73	28,058.34
Holmes, Hill, Seibold & Holmes, Amarillo	21,809.92	35,968.95
Hodges, F. M., Wichita Falls	170.32	275.91
Hamon, Jake L., Ardmore, Okla.	21,435.42	36,433.72
H-Y Oil Co., Inc., Fort Worth	11,264.36	17,460.82
Helvetia Oil Co., San Antonio	11,853.10	14,582.43
Hunter, T. F., Wichita Falls	19,891.98	33,492.28
Herbert Oil Co. of Texas, Fort Worth	6,186.87	9,722.66
Hyer, Fred, Fort Worth	29,834.36	28,960.52
Hanlon Gasoline Co., Tulsa, Okla.	2,063.06	2,947.34
Heidrich, E. C., Jr., Amarillo	5,492.08	6,604.24
Harvey, R. A., Houston	1,294.00	1,504.66
Hope Oil & Gas Co., Fort Worth	9,274.25	14,144.96
Hoppes, W. T., Burkburnett	464.32	668.35
Hobbs Oil Co., Tulsa, Okla.	1,296.85	1,994.88
Harrison Oil Co., Houston	73,712.01	120,807.39
Houston Production Co., Houston	115,677.08	158,513.22
Hinson & Tidwell, Graham	7,534.10	11,776.94
Humphreys Brothers, Inc., Houston	2,749.49	4,219.96
Horn, T. W., Houston	2,300.71	2,990.73
Hill, H. R., Trustee, Burkburnett	243.58	410.97
Harwell, E. P., Tulsa, Okla.	2,933.21	4,882.14
Haimack Oil Co., Dallas	170.18	275.58
Hammon, W. H., Wichita Falls	31,440.20	52,465.80
Hammon & Heyser, Wichita Falls	17,040.14	26,115.06
Hutcheson, Frank, Archer City	429.33	618.35
Houston Oil Co. of Texas et al, Houston	202,412.02	156,549.56
Haskell, Frank, Humble	1,755.54	2,447.42
Howell, W. L., Lohn	694.00	1,041.00
Houston Gulf Gas Co., Houston	71,744.54	52,239.02
Herrogan Oil Corp., Pampa	10,470.40	14,669.32
Holbrook & Woods, Wichita Falls	7,058.78	10,842.57
Hughes, J. K., Oil Co., Mexia	21,097.81	33,123.53
Holcombe, Thomas, Wichita Falls	427.65	690.25
Hobson & Voorhees, San Antonio	622.37	824.58
Hammond, J. G., Tulsa, Okla.	175.23	293.03
Hughes, William K., Trustee, St. Louis, Mo.	968.66	1,431.28
H. B. J. Oil Co. & Gas Trust, Baltimore, Md.	2,032.78	3,342.28
Hines, Harry, Wichita Falls	4,938.45	8,330.36

(Continued on next page)

WHERE THE DEMAND IS PORTABILITY—

—there you will find "TOLEDOS".

Work in the oil fields and shops requires threading equipment that is strong, compact, portable and easy to operate. "TOLEDOS" from the smallest for ⅛" to the largest for 12" pipe conform in all ways to these requirements and one man can easily operate any of them.

This illustration shows the shop of the Richland Oil Co., Portland, Ore., completely "TOLEDO" equipped for maximum efficiency.

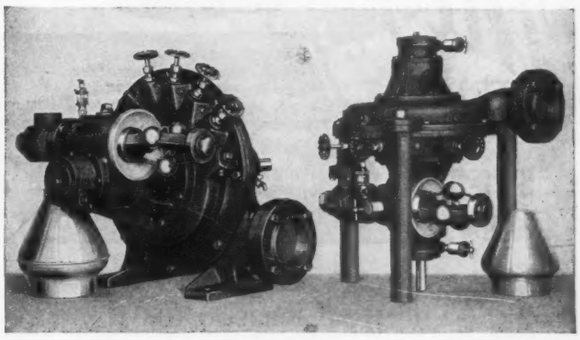
"TOLEDO", the line of quality pipe tools, has a machine for every type of work. A post card brings full information and complete catalog.

THE TOLEDO PIPE THREADING MACHINE CO. TOLEDO, OHIO

New York Office, 72 Lafayette St.

Coppus Steam Turbines

The ideal prime mover. Easy speed control. Explosion proof. Exhaust steam free from oil, so that it serves as "reducing valve" for heating or process work, giving power without cost.



Horizontal **¼ to 60 H. P.** **Vertical**

Coppus Engineering Corporation
343 Park Ave., Worcester, Mass.

The New

SAFTE-LOCK TRAVELING VALVE

DESCRIPTION

The patented SAFTE-LOCK device consists of a Lock in the Crown and bottom which makes up against a soft bronze disc, forcing it into the body threads without damage to them. The same pressure which keeps the crown from backing off keeps the setscrew from working out. No special tools are needed, the SAFTE-LOCK VALVE'S simpleness of operation makes them unnecessary.

Use it to prevent Crowns and Bottoms from unscrewing while the valve is in operation — no amount of vibration or pounding will loosen a SAFTE-LOCK Crown or Bottom. The SAFTE-LOCK is positive in its action, simple and without any wearing parts to be constantly replaced.

Within two hours after your order is received, your supply store can secure immediate shipment of SAFTE-LOCK VALVES.

Branches: Houston, El Dorado, Tulsa, Coffeyville, *Headquarters and Plant:* Fort Worth

Petroleum Equipment Co.
FORT WORTH TEXAS

JON R. LONG
Manager
Office
Ft. Worth, Texas

Athey TRUSS WHEEL OIL FIELD WAGONS

ATHEYS are all steel general utility wagons for use behind tractors, either singly or in train. Carry maximum 10-ton loads under all operating conditions. They are the modern, economical means for hauling heavy loads. Made in 10, 15 and 20-ton capacities. Write for full information.

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130 North Wells Street ... Chicago, U. S. A.
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The Baldwin Locomotive Works,
Foreign Representatives, Philadelphia, Pa.

The Real Reason for It

The Oil and Gas Journal uses extra large pages in order to give you complete information every week with oil field maps, well-logs, refinery and plant designs, flow charts, tables and illustrations.

Each issue contains illustrated engineering articles describing practical and more economical methods of Exploring, Producing, Refining, Marketing, and Transporting Crude Oil and its Refined Products.

Name and address—	Barrels	Value
Hynds Oil Co., Cheyenne, Wyo.	578.12	908.41
Haynes, J. H., De Leon	671.00	947.74
Hobbs & Ferguson, Abilene	158.55	226.05
Hickory Oil & Gas Corp., Fort Worth (5/1-12/31)	3,592.43	5,444.44
Holder, F. W., Breckenridge	369.78	475.77
Hill & Dowell, Batson	12,641.85	16,434.40
Howard County Oil Corp., Big Spring	101,097.76	104,554.74
Hanover Co., The, Wichita Falls	1,876.12	2,712.46
Holmes Brothers, Amarillo	1,998.88	2,582.56
Hardie, J. M., & Co., Sour Lake	141.50	183.95
Hoffman & Page, Eastland	27,520.04	43,016.39
Homaokla Oil Co., Tulsa, Okla.	3,790.98	6,670.18
Hammunn Oil Co., Eastland (9-30-29)	323.00	468.35
Hart Brothers, Baird	207.98	291.17
Holmesly, W. L., trustee for Kirk & Evans, Gorman	2,383.44	3,652.80
Hyde, George, Houston	7,180.28	8,792.82
Hyde Production Co., Houston	3,109.07	4,041.79
Harris & Simons, Tulsa, Okla.	6,352.62	5,399.74
I		
Infield Petroleum Co., Austin	666.54	989.48
Irick Oil Co., Waskom	180.00	244.80
Independent Oil & Gas Co., Tulsa, Okla.	338,753.09	293,267.67
J		
Jones, J. E., Wichita Falls	1,611.00	2,625.11
Jones, J. F., et al, Abilene (9-30-29)	274.33	318.88
Jones, J. F., et al, Abilene	236.86	331.59
Japhet Production Co., Houston	3,972.34	4,554.47
Justin Oil Corp. et al, Wichita Falls	9,122.32	15,365.32
Jones, J. A., Moran	254.96	433.33
Jones, W. A., Minerva	1,178.28	1,592.94
Jones, Tom, Albany	5,730.74	9,168.17
Janellen Oil Co., Inc., Tulsa, Okla.	121.31	157.70
Judson Oil Co., Tulsa, Okla.	6,984.37	11,415.12
Jackson, T. H., Sipe Springs	106.52	149.30
Jones, Hugh, Burkburnett	2,799.00	4,022.02
Jones, Edwin M., San Antonio	11,862.34	17,093.29
Jacob Oil & Gas Co., Graham	1,288.22	1,903.05
Jackson, J. S., Trustee, Sour Lake	3,039.13	3,950.87
Jacobs, I., Dallas	36.20	50.68
Jacobs, I., Dallas (9-30-29)	94.51	127.59
Julia Oil Co., Sour Lake	3,134.91	4,075.39
Johnson Brothers, San Antonio	6,149.79	8,284.11
Jennings, A. B., & Co. leases, Denver, Colo.	10,097.21	12,305.23
K		
Kerr, T. P. Corsicana	553.61	840.28
Kemp, Oscar, Burkburnett (6-30-29)	2,385.36	3,169.89
Kemp, Oscar, Burkburnett (9-30-29)	2,556.57	3,800.73
Kavanaugh Petroleum Co., Houston	3,523.19	5,291.85
Kleinfelder, B. F., Breckenridge	404.46	625.45
Keck Investment Co., Los Angeles, Calif.	6,015.38	6,015.38
Kohlman, Richard, Iowa Park	511.00	810.83
Knotts, F. F., Wichita Falls	657.64	1,063.69
Kleiner, Charles J., Cisco	15,877.80	24,533.28
Kahle, Gracey & Diver, Bridgeport, Ill.	2,945.96	2,504.06
Kent, G. C., Corsicana	19,312.84	26,893.63
Kurz Oil Co., Somerset	484.83	537.23
Kokomo Petroleum Co., Gorman	492.00	778.61
Kay, A. W., receiver, Jones et al, Graham	1,145.81	1,783.14
King Royalty Co., Wichita Falls	151,942.68	243,970.25
Kolp, C. F., Electra	22,294.08	34,110.03
Kendrick, P. S., Albany	1,200.41	1,440.48
Koenig, Max W., Oakland, Calif.	18,803.70	16,923.33
Kaufman, L., San Antonio	524.26	602.90
Kimmell & Woofter, Wichita Falls	3,303.58	5,314.45
Kimbell & Bostic, Burkburnett	4,578.01	7,095.92
Keystone Production Co. of Texas, Fort Worth	3,084.29	5,035.03
Kelly, George L., Trustee, Wichita Falls	376.34	583.32
Kemrow Co., Wooster, Ohio	13,310.52	21,842.26
Keller, J. E., Iowa Park	214.78	354.40
King & Daniel, Wichita Falls	5,107.84	8,587.70
Knox, D. M., & Shaw, T. G., Graham	13,064.27	22,208.26
Kewanee Oil & Gas Co., Titusville, Pa.	277,567.76	447,410.07
Kistler, Frank E., & Co., New York, N. Y.	3,189.30	3,246.01
Keener Oil & Gas Co. of Texas, Tulsa, Okla.	4,340.84	6,473.77
Kate Bell Oil Co., The, Dallas	951.09	1,545.64
King, Anna B., Muskogee, Okla.	281.82	219.98
Klemcke, George, Trustee, Von Ormy	1,604.03	1,900.81
Killam, O. W., Laredo	111,915.78	100,724.21
Kershaw, L. R., Muskogee, Okla.	845.46	659.93
King, B. A., Trustee, Wichita Falls	3,518.64	3,166.78
Kuhlemeier-Kleiner Oil Co., Cisco	504.03	807.88
Kirk & Son, Gorman	4,442.62	5,444.91
Kurz, A. A., Somerset (9-30-29)	369.23	468.43
Kurz, A. A., Somerset	332.16	425.93
Kirby Petroleum Co., Houston	50,136.42	47,193.35
L		
Lee & Simon, Cisco (7-1-29 to 12-31-29)	295.64	476.80
Lee, Homer, Wichita Falls	1,718.93	2,858.17
Lyons & Graylapp, Pampa	2,173.72	3,437.95
Little Caddo Syndicate, Fort Worth	1,951.96	3,196.30
Lefors Petroleum Co., Lefors	52,986.47	75,069.18
Lido Oil Co., Wichita Falls	927.57	1,252.20
Lebow, C. H., Tulsa, Okla.	1,126.69	1,915.36
Lynch, J. D., Trustee, Sioux Falls, S. D.	1,684.62	3,018.71
Lake View Oil Co., Sour Lake	17,685.00	22,990.50
La Salle Petroleum Co., Tulsa, Okla.	3,923.17	5,883.56
Long, Roy, Oil Co., Navasota	2,063.98	3,157.88
Leidecker Oil & Gas Co., San Angelo	136.24	218.34
Leiser-Rochmill Production Co., Inc., Fort Worth	2,070.18	3,264.61
Lewis Production Co., Pittsburgh, Pa.	67,171.29	100,528.55
Long, C. B., Wichita Falls	447.13	648.25
Leonard Oil & Gas Co., Somerset	199.46	239.34
Leonard, George, Somerset	967.82	1,159.67
Larkin, W. B., Wichita Falls	219.93	351.88
Last Chance Gas Co., Pampa	1,738.90	2,287.17
Len-Cook Oil Co., Electra	365.97	584.74
Lockhart & Co., El Paso	91,878.06	114,815.52
Lomax, Thornton, Jr., Wichita Falls	2,028.32	3,346.81
Lawson, Eugene B., Tulsa, Okla.	66,958.50	101,439.97
Lone Star Gas Co., Dallas	12,730.15	21,802.93
Loggie & Arendt Oil Co., Albany	1,840.00	2,545.00
Lee & Simon, Cisco (6-30-29)	213.90	304.53
Little, William, Breckenridge	292.15	428.61
Lytle, C. F., Mexia	8,351.56	12,109.72
Lion Oil & Refining Co., El Dorado, Ark.	904,791.08	822,326.91
Lake Graham Oil Co., Houston	2,826.69	3,832.50
Lowenstein Oil Co., Rockdale	751.81	1,120.20
Lesh, Kilcrease & Co., Nocona	2,360.71	2,242.67
Lesh & McCall, Nocona	19,106.14	16,240.22
Lesh, John L., & Co., Wichita Falls	7,426.02	6,457.39
Lee & Scott, Inc., Houston	2,728.69	3,447.30
Lackey, W. G., Co., Tulsa, Okla.	3,110.41	4,878.90
Louisiana Oil & Refining Co., Shreveport, La.	48,159.35	53,619.35
Lowry Oil Corp., Wichita Falls	3,896.41	6,254.29
Lowe, Delaney & Carter, De Leon	147.53	199.14
Letwin & Lippitt, Breckenridge	10,433.30	15,937.45
Linedo Oil Co., Lincoln, Nebr.	1,947.14	1,752.42
Lyons & Gralopp, Pampa	3,932.88	6,292.56

(Continued on next page)

Name and address—	Barrels	Value
Lela Oil & Gas Co., Amarillo	875.00	857.50
Ledger Oil & Gas Co., Brownwood	852.25	1,325.25
Lewis, J. E., et al, Eastland	1,341.78	2,079.73
Lewis, J. E., & Co., Eastland	1,850.45	2,434.71
Lucey Petroleum Co., Dallas	262.34	388.72
Levy, Lenord M., Trustee No. 1, Fort Worth	2,344.05	4,063.12
Levy, Lenord M., Trustee No. 2, Fort Worth	1,358.42	2,309.32
Levy & Evans, Trustees, Fort Worth	167.84	276.91
Lloyd Oil Corp., Fort Worth	22,550.94	28,188.66
Landreth Production Corp., Fort Worth	358,214.37	314,212.74
Lobban, J. T., et al, Electra (4-1 to 12-31)	340.82	526.72
Laredo Oil Co., Laredo (year 1929)	5,368.55	5,368.55
Lytle, G. F., Jackson Lease, Mexia (4-1-29 to 12-31-29)	2,741.81	4,317.40
Mc		
McMan Oil & Gas Co., Tulsa, Okla.	1,052,724.31	1,221,366.70
McChesney, Nancy, Olney	4,720.27	6,787.79
McDonald, A. G. and M. C., Putnam	5,843.89	9,198.96
McCormick & Noack, Rockdale	70.97	99.35
McNallen & Griffin, Tulsa, Okla.	4,567.34	6,966.59
McMurray, J. L., et al, Cisco	2,237.37	3,789.14
Macknold Co., San Antonio	231.12	251.50
McIlroy Oil Co., Amarillo	43,847.27	48,268.35
McCarty Oil Co., Wichita Falls	80,180.64	137,506.31
McLean, Mars, Beaumont	78,461.72	86,307.90
Macknold Co., San Antonio	231.12	251.50
McDonald & Campbell, Dallas	2,806.77	4,436.75
McCall, C., Trustee, Nocona	611.39	748.96
McFall, J. M., Wichita Falls	732.19	1,179.82
McCutchen, C. E., Trustee, Wichita Falls	6,955.52	11,136.10
McCrary, E. W., Tulsa, Okla.	4,009.16	5,862.28
McNamara Oil Co., Beaumont	2,711.82	3,525.37
McLester Oil Co., Eastland	11,705.56	21,466.55
McGraw Oil Co., Tulsa, Okla.	1,182.17	1,712.99
McGinley-Sigler Co., Fort Worth	659.00	551.59
McGee, Vonnie, Amarillo	1,772.19	1,282.67
McBride, W. C., Inc., St. Louis, Mo.	5,540.71	7,614.57
McJunkin, Florence T., Tulsa, Okla.	454.55	818.20
McNallen, A. J., et al, Breckenridge	1,145.44	1,766.05
McDaniel Oil Corp., Cisco	5,152.08	9,173.11
M		
Mason, J. F., Putnam	3,270.80	5,212.92
Mid-Continent Holding Corp., Wichita Falls	20,700.20	35,775.63
Merrick & Bristow, Ardmore, Okla.	105,413.67	84,229.72
Mission Drilling Co., Houston (6-1 to 11-30)	151,573.37	109,420.28
Madison Oil & Gas Co., Electra	4,081.36	6,953.54
Minniex Oil Corp., Wichita Falls	828.87	1,136.62
Moody Corp., Tulsa, Okla.	740,144.60	778,477.20
Martin, Drake & Jones, Houston (9-30-29)	14,400.71	18,710.91
Minor Oil Co., Beaumont	7,348.62	9,553.20
Mills & Garitty, Corsicana	1,703.65	2,128.56
Midland Oil Co., Fort Worth	526.68	763.68
Menke, John G., Wichita Falls	1,426.33	2,392.86
May, F. N., Santa Anna	391.88	546.47
Montgomery-Rea-Montgomery, Sedwick	1,413.86	2,192.25
Milham Corp. of Texas, San Antonio	5,420.11	8,895.50
Mecom Oil Co., Liberty	3,729.00	4,848.20
Morgan, Ray, et al, Fort Worth	922.72	1,506.73
Minerva Petroleum Co., Minerva	836.44	1,279.75
Margarett Oil Co., Albany	365.00	584.50
Medio Oil Co., San Antonio	1,049.49	1,388.54
Madden, E. B., Olney	21,711.92	37,357.97
Madden & Hunt, Olney	1,751.50	2,941.08
Merrick & Belcher, Wichita Falls	11,668.38	21,586.49
Merrick & Goldsmith, Wichita Falls	3,867.72	6,371.18
Minnich, A., Archer City	73.58	88.29
Mendenhall Oil Co., Cisco	1,506.74	2,625.18
Midwest Exploration Co., The, Denver, Colo.	213,235.98	318,983.52
Mid-Continent Petroleum Corp., Tulsa, Okla.	11,302.15	17,899.34
Mitcham, G. P., Cisco	1,094.34	1,694.38
Moss & Urschel, Dallas	16,456.51	23,904.59
Moss, Urschel & Keys, Dallas	10,239.94	14,847.90
Mann & Forbes, Graham	3,833.75	6,049.61
Mann & Forbes, Graham (9-30-29)	1,932.04	3,129.98
Mid-Kansas Oil & Gas Co., Findlay, Ohio	2,980,674.44	2,782,547.38
Marquette Oil Co., Tulsa, Okla.	5,262.78	6,877.05
Milliken, L. L., Burkburnett	323.96	477.08
Midwest & Gulf Co. of Texas, Tulsa, Okla.	1,781.54	2,160.84
MacDermott, W. F., Fort Worth	447.62	677.70
Mues & MacDermott, Fort Worth	346.42	515.56
Mount & Lee, Inc., Wichita Falls	1,835.31	2,792.02
Moutray Oil Co., Abilene	99,614.17	157,288.39
Marnet Oil & Gas Co., Tulsa, Okla.	4,568.34	6,907.42
Major, A. W., Laredo	3,484.60	3,136.14
Marshall, George S., Laredo	5,413.66	4,872.29
Medina Oil & Gas Assn., San Antonio	166.22	202.06
Magnolia Petroleum Co., Dallas	2,340,306.63	2,658,082.43
Massie, J. H., Wichita Falls	35,843.46	52,702.82
M. & V. Oil Co., Wichita Falls	4,942.84	8,020.25
Mennis, G. W., Wichita Falls	4,561.46	7,124.60
Moran Co. (The), and for W. J. Moran, Anderson-Prichard Oil Corp., and Independent Oil & Gas Co., Wichita Falls	12,010.13	18,371.28
Morton, A. D., Tulsa, Okla.	2,141.60	2,595.33
Moore, N. A., Eastland	926.23	1,305.60
Melat Oil Co., Fort Worth	17,121.00	24,676.98
Mayberry, C. R., Co., Laredo	2,335.11	2,101.59
Martin & Hamilton, Wichita Falls	13,487.93	19,570.98
Mills Bennett Production Co., Houston	193,699.29	237,599.25
Murchison Oil Co., Dallas	88,083.15	81,621.56
Mann, Floyd, Graham	2,214.00	3,512.91
Marts, E. R., Dallas	3,668.29	5,241.37
Mordyan Petroleum Co., Pampa	63,978.97	96,231.40
Maxwell, J. C., Fort Worth	60,953.09	60,984.38
Moore, F. L., trustee, Tulsa, Okla.	1,855.72	2,860.23
Moore, C. O., Oil Corp., St. Louis, Mo.	28,643.35	45,465.01
Magee, R. B., Wichita Falls	1,996.96	3,016.04
Meredith & Gant, Wichita Falls	2,444.13	3,267.15
Meridian Petroleum Corp., Tulsa, Okla.	2,778.53	4,094.92
Minnehoma Oil & Gas Co., Tulsa, Okla.	3,995.61	4,409.33
Merrick & Lamb, Ardmore, Okla.	21,962.21	21,505.26
N		
Newton & Lillie, Shreveport, La.	21,768.71	28,299.35
Newport and Ohio Petroleum Co., Newport, N. Y.	399.10	618.59
Newton Palmer Oil Co., Rockdale	371.77	553.79
National Oil Co., San Antonio	707.15	798.77
Noack & Lanning-Phillips & Perry, Rockdale	74.46	104.24
Noack & Lanning-Shelton, Rockdale	232.66	346.66
Noack Oil Co., Rockdale	1,369.10	2,035.30
Navarro Oil Co., Houston	227,406.76	284,654.37
Number Nine Oil Corp., Tulsa, Okla.	2,372.28	3,756.84
Nunn-Stubblefield Oil Co., Amarillo	21,339.05	35,091.72
Nabob Oil & Gas Co. (The), Amarillo	34,432.86	42,335.69
Nash, Windfohr & Perry, Austin	70,150.43	87,688.03
North Fork Oil Co., Amarillo	5,081.17	7,307.61
Necessity Oil Corp., Eastland	986.97	1,445.56
Nimrod Oil Co., Dallas	119.72	203.52
Nash & Windfohr, Graham	10,479.29	17,682.03
O		
Onsen, M., Kansas City, Mo. (6-30-29 to 12-31-29)	2,051.13	3,343.44
O'Brien, W., Amarillo	565.94	679.12

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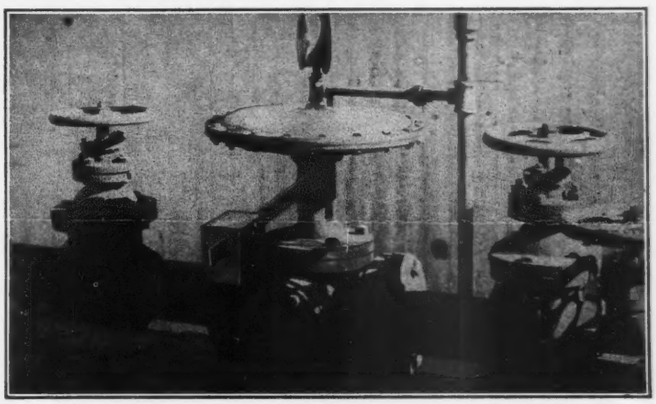

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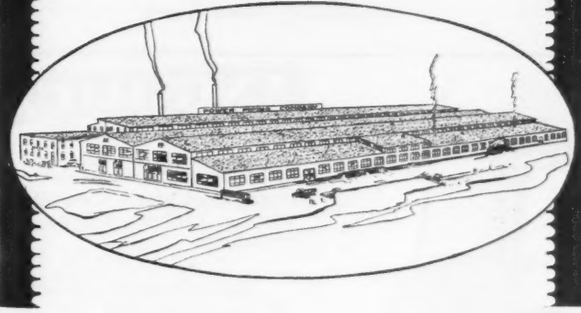

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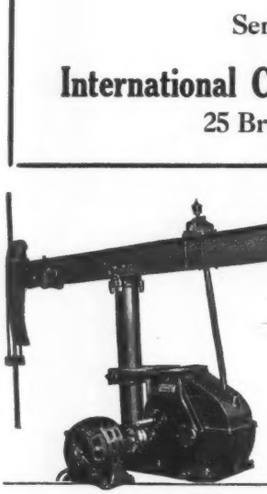

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Name and address—	Barrels	Value
Overby, J. D., Iowa Park	345.30	580.51
Owens Oil Co., Brownwood	329.17	378.54
Oil Royalty Corp., F. S. Preston, receiver, Brownwood	297.62	359.42
Ocean Oil & Refining Co., El Paso	954.39	1,097.54
Ocean Oil & Refining Co., El Paso (9-30-29)	981.63	1,128.87
Ocean Oil & Refining Co., El Paso (6-30-29)	893.86	965.36
Owenwood Pool No. 3, J. W. Robbins, trustee, Fort Worth	4,439.12	6,620.89
Optimist Oil Co., Electra	2,212.58	3,519.02
Oil Investment Co., Wichita Falls	2,385.14	3,680.71
Olney Oil & Refining Co., Olney	190.68	295.56
Ochiltree, Jeffries & Tyler, Amarillo	246.00	418.20
Owens, Sherwood B., Inc., Brownwood	7,381.00	12,438.86
Old Ocean Oil Co., San Antonio	2,726.97	1,990.69
Oriental Oil Co., Dallas	414.75	570.90
Omilak Oil Co., Spokane, Wash.	139.94	174.93
Olgufer Oil Corp., Refugio (year 1929)	59,928.66	47,447.28
Ohio Somerset Oil Co., Cleveland, Ohio	1,325.20	1,544.58
Osage Development Co., Bartlesville, Okla.	1,096.16	986.55
Oldon, William P., Iowa Park	1,290.00	2,129.13
Oil Fields Corp. of Ark., El Dorado, Ark.	99.00	138.60
Operators Oil Co., Tulsa, Okla.	323,175.80	443,515.54
Old Colony Oil Co., Dayton	2,427.00	3,155.10
Orange Petroleum Corp., Orangefield	26,659.91	34,210.00
O'Neil, John, Wichita Falls	17,747.28	30,145.17
Owen-Sloan Oil Co., Forsan	91,594.58	74,236.12
Olean Petroleum Co., Bristow, Okla.	18,257.98	17,315.05
Ochiltree, C. N., et al, Pampa	34,383.31	51,226.27
P		
Pace, T. J., Iowa Park (9-30-29)	308.86	474.40
Pace, T. J., Iowa Park (12-31-29)	377.34	580.22
Producers Supply & Tool Co., Marietta, Ohio	3,531.44	5,770.68
Producers & Refiners Corp. of Texas, Independence, Kans.	5,150.13	7,976.26
Plymouth Oil Co., Pittsburgh, Pa.	163,880.05	166,295.89
Pecos Crude Oil Purchasing Co., San Angelo	3,598.98	3,604.29
Pearson, W. L., Properties, Inc., Corpus Christi	120,936.00	85,928.74
Palmer & Burch, Inc., Wichita Falls	12,441.90	20,126.15
Petroleum Investment Co., Wichita Falls	3,321.81	5,424.91
Palo Duro Oil Co., Amarillo	4,964.61	5,817.65
Pace, George L., Wichita Falls	621.41	1,000.63
Producers Drilling Co., Wichita Falls	5,420.00	8,735.77
Petroleum Producers Co., Wichita Falls	128,334.69	206,915.43
Poole, B. O., Batson	2,478.66	3,222.27
Progressive Production Co., Kansas City, Mo.	1,400.94	2,301.72
Pender & Co., Denton (9-30-29)	969.80	1,751.90
Prairie Oil & Gas Co., Independence, Kans., Prairie-Shamrock Operating Acct.	38,220.46	57,652.58
Prairie Oil & Gas Co., Independence, Kans.	1,166,691.19	1,342,818.71
Prewitt, L. D., Abilene	2,140.00	2,354.00
Panhandle Refining Co., Wichita Falls	295,887.83	416,074.21
Paggi Bros. Oil Co., Beaumont	8,527.14	11,086.81
Paggi, Charles & Co., Beaumont	833.46	1,083.10
Prairie Lea Production Co., San Antonio	8,238.80	7,414.92
Pharis Oil Co., Amarillo	1,704.38	1,703.53
Patterson, W. A., Fort Worth (3-31-29)	2,541.65	3,481.58
Petroleum Producers Co., Wichita Falls	471.11	772.72
Preston Oil & Gas Co., Brownwood	311.85	452.15
Pace & Ward, Breckenridge	1,760.04	2,713.41
Phillips, J. R. (Invador Drilling Co.), Amarillo	3,767.49	3,893.35
Phillips & Milam, Chelsea, Okla.	82.92	128.52
Pender & Co., Denton	1,835.82	2,896.50
P-M Drilling Co., Chelsea, Okla.	93.84	150.84
Patterson, W. A., Fort Worth (6-30-29)	2,225.56	3,323.58
Patterson, W. A., Fort Worth	364.47	579.38
P. & M. Oil Co., Oil City, Pa. (3-31-29)	113.49	159.03
P. & M. Oil Co., Oil City Pa. (6-30-29)	113.40	162.12
P. & M. Oil Co., Oil City, Pa. (9-30-29)	113.80	184.83
P. & M. Oil Co., Oil City, Pa.	92.77	153.06
Portland Drilling Co., Wichita Falls	770.00	1,220.28
Phillips Petroleum Co., Bartlesville, Okla.	2,763,746.35	3,857,908.32
Pelwin Oil Corp., Wichita Falls	606.92	910.91
Pilkerton & Windham, Burkburnett (3-31-29)	1,920.00	2,586.20
Pilkerton & Windham, Burkburnett (6-30-29)	1,878.42	2,648.57
Pilkerton & Windham, Burkburnett (9-30-29)	2,545.83	3,891.03
Pilkerton & Windham, Burkburnett	2,392.25	3,707.98
Pitzer & West, Breckenridge	18,167.70	29,260.92
Phillips, J. R. (Jewel), Amarillo	2,764.37	3,804.03
Phillips, J. R. (Currie), Amarillo	936.21	1,226.78
Piney Oil & Gas Co., New York, N. Y.	3,402.36	3,368.52
Py-Tex Oil Co., Winchester, Ky.	1,337.57	2,264.50
Perkins & Cullum, Wichita Falls	52,089.87	80,266.16
Perkins, J. J., Wichita Falls	2,517.45	3,666.10
Pivoto, M. E., Sour Lake	4,769.91	6,200.88
Partee, G. M., San Diego, Calif. (April to Oct. 18, 1929)	26,334.18	23,269.42
Piper, L. E., trustee, Vernon	1,909.77	3,047.65
Pinto Oil Co., Mineral Wells (9-30-29)	69.00	87.63
Pinto Oil Co., Mineral Wells (6-30-29)	200.68	235.45
Pinto Oil Co., Mineral Wells (3-31-29	303.21	357.72
Pinto Oil Co., Mineral Wells	87.00	111.36
Pickens & Lewis, Dallas (month Oct., 1929)	158.03	245.36
Prewitt, L. D., Abilene (Jan. 1, to Sept. 30, 1929)	7,317.00	7,988.70
Primrose Oil Co., Sour Lake	1,979.87	2,573.83
Price-Russell & Co., Ranger	4,300.05	7,722.31
Perry, Thomas H., Wichita Falls	4,559.85	7,704.78
Parmain Oil Co., Eastland	46,523.77	85,796.17
Pollard, W. E., and C. E., Pampa	5,817.65	8,790.31
Philp Brothers, Beaumont	3,300.08	4,290.10
Powell, H. J., trustee, San Antonio	15,534.29	19,417.87
Poor Boy Oil Co., Rockdale	320.36	464.68
Powell, J. L., Wichita Falls	421.19	668.64
Pure Oil Co., Chicago, Ill.	136,378.75	162,409.66
Pure Oil Co., Chicago, Ill.	546,942.75	730,449.74
Putnam Oil Co., Tulsa, Okla.	43,071.08	66,574.83
Pols, Fine & Schulz, Wichita Falls	903.77	1,491.23
Pols, M., trustee, Wichita Falls	241.10	383.29
Pols, M., et al, Wichita Falls	3,902.47	6,348.33
Parry Oil Co. of Texas, Fort Worth	67.97	91.76
Palmer, Freddie, Oil Co., Rockdale	81.07	120.78
Powers Production Co., Houston	1,674.37	1,685.26
Pemeta Oil Co., Fort Worth	4,052.18	6,385.23
Pandem Oil Corp., Wichita Falls	14,261.56	22,246.66
Primrose Refining Co., Wichita Falls	5,664.22	9,365.92
Paraffine Co. (The), Houston	10,582.08	13,756.70
Pioneer Oil & Gas Co., Danville, Ill.	1,163.13	1,331.67
Panhandle & Santa Fe Ry. Co., Wichita, Kans. (9-30)	9,758.26	6,342.87
Panhandle & Santa Fe Ry. Co., Wichita, Kans.	9,227.09	5,997.61
Pilkerton, F. L., Burkburnett	1,246.88	1,870.52
Q		
Quinn, J. W., et al, Eastland	3,332.45	5,936.16
Quincy Oil Co., Vernon	151.96	256.73
Quartet Oil Co., Tulsa, Okla.	7,007.97	12,203.19
R		
Right-of-Way Oil Co., Fort Worth	1,047.43	1,623.52
Reed, Crenshaw & Glass, Nowata, Okla.	12,723.04	20,707.96
Reed, Crenshaw & Glass, Nowata, Okla. (9-30-29)	13,218.73	21,461.52
Richards, M. L., Wichita Falls	553.86	886.18
Remo Oil Co., Pampa (9-30-29)	431.10	610.48
Robertson Drilling Co., Fort Worth	1,132.27	1,861.52
Ruby Oil Co., Minerva	228.86	340.98
Rensaul Petroleum Co., Pampa	1,629.00	1,850.21
Rubsam & Hunter, Wichita Falls	6,545.72	11,179.64

(Continued on next page)

Name and address—	Barrels	Value
Rannell Oil Co., Oklahoma City, Okla.	5,377.66	8,397.65
Rochmill, Henry, trustee, Fort Worth	755.12	1,132.68
Rountree & White, Rockdale	798.38	1,189.58
Rycade Oil Corp., Houston	126,397.91	140,768.16
Reeder & Scarborough, Wichita Falls	1,879.91	3,018.41
Ruyle Farm & Oil Co., Wichita Falls	7,198.90	11,809.15
Reeder, R. S., et al, Wichita Falls	11,014.69	18,082.91
Rio Bravo Oil Co., Houston	451,207.51	578,330.71
Rockwell, J. A., & Co., Warren, Pa.	2,044.89	3,045.79
Riner & Bailey, Wichita Falls	51,931.76	86,857.79
Rainer & Omohundro, Wichita Falls	16,381.21	27,541.62
Rock Creek Oil Corp., Amarillo	17,391.13	19,477.35
Red River Oil Co., Tulsa, Okla.	15,074.32	24,322.77
Robertson, R. R., Wichita Falls	10,729.29	15,234.59
Reno Oil Co., Sistersville, W. Va.	53,450.05	87,112.18
Robinson, Arthur D., Dallas	6,490.76	8,286.99
Rock Island Oil Co., Amarillo	738.20	875.37
Rockdale, Jr., Oil Co., Rockdale	215.14	310.32
Ruthada Oil Co., Oklahoma City, Okla.	13,996.13	15,341.67
Rathke Oil Co., Wichita Falls	26,950.70	44,626.41
Reed, Crenshaw & Glass, Nowata, Okla. (6-30-29)	12,749.51	18,630.67
Republic Production Co., Houston	627,911.10	746,817.39
Ramsel, W. T., Oil Co., Rockdale	1,636.83	2,438.87
Red Bank Oil Co., Tulsa, Okla.	15,497.27	25,142.21
Ryan Consolidated Petroleum Corp., Tulsa, Okla.	106,205.85	170,056.32
Ross, C. E., Burkburnett	515.51	780.58
Rhodes & Highers, Breckenridge	5,602.71	8,735.76
Rex-Tex Oil Co., Winchester, Ky.	1,337.57	2,264.50
Root & Fehl, Eastland	12,198.00	19,645.00
Root, C. M., Eastland	6,483.00	10,447.00
Root Drilling Co., Eastland	10,951.00	17,463.00
Root, Rhodes et al (McMurray et al), Eastland	982.00	1,818.00
Root & Rhodes, Eastland	5,271.00	8,484.00
Root, Rhodes et al, Eastland	7,069.00	12,053.00
Roeser & Pendleton, Inc., Fort Worth	326,813.69	533,719.46
Reclamation Co., Fort Worth (6-30-29)	5,826.98	7,923.12
Rex Petroleum Corp., Vinton, La.	19,479.83	25,323.78
Richardson & Kelsey, Fort Worth	3,890.59	3,345.90
Ramming, Staley & Ramming, Wichita Falls	639.77	991.86
Ramming, W. F., Wichita Falls	170.51	289.86
Ramming, R. W., Wichita Falls	7.74	11.21
Reed & Parks et al, Abilene (9-30-29)	4,295.06	6,936.83
Riggs & Oliphant, Graham	12,326.23	19,105.65
Rentax Oil Co., San Antonio	7,750.90	8,773.58
Reinhart, M. J., trustee, Oklahoma City, Okla.	530.40	852.94
Reclamation Co., Fort Worth	4,791.83	7,162.60
Reiter-Foster Oil Corp., Tulsa, Okla.	16,831.73	26,386.25
Reserve Petroleum Co. of Texas, Tulsa, Okla.	647.21	1,108.81
Robert Oil Corp., Breckenridge	35,785.33	56,881.28
Russell & Wilson, Wichita Falls	4,181.72	6,050.18
Rowe, J. G., Wichita Falls	4,428.29	6,503.96
Roberts, H. W., Wichita Falls	2,342.05	3,867.84
Royal Petroleum Corp., San Antonio	25,975.05	31,214.29
Rolyat Production Co., Houston (6-30-29)	7,080.00	8,552.05
Rolyat Production Co., Houston (9-30-29)	10,373.00	13,115.95
Rolyat Production Co., Houston	10,457.00	13,430.00
Ramsey, E. H., Rising Star	659.58	1,161.50
Robinson, O. D., Pittsburgh, Pa.	1,226.22	1,241.64
Randado Oil Corp., Oklahoma City, Okla.	20,478.91	18,431.02
Robinson, J. B., Sour Lake	193.76	251.89
Remo Oil Co., Pampa	1,358.00	2,115.70
Refugio Oil Corp., Refugio	56,667.70	39,667.39
Ruthada Oil Co., Ardmore, Okla.	548.43	493.59
Ross Segunda Oil Co., Laredo	768.76	691.88
Ross Amigos Oil Co., Laredo	11,229.37	10,106.44
Ross, James F., Laredo	2,949.94	2,663.95
Richardson Trust Co. and M. L. Dresser, Markley (9-30-29)	366.66	513.33
Richardson Trust Co. and M. L. Dresser, Markley	1,390.72	1,947.15
Rock Creek Oil Corp., Amarillo (3-31-29)	19,133.41	18,912.02
S		
Shulman, Harry, et al, Breckenridge (6-30-29 to 12-31-29)	5,386.23	6,980.14
Sinclair Oil & Gas Co., Tulsa, Okla.	110,275.65	185,194.07
Sedwick Oil Co., Tulsa, Okla.	10,393.15	14,943.53
Schroeder Drilling Co., Burkburnett	173.24	377.15
Sinclair Oil & Gas Co., Houston	117,748.66	154,194.61
Shaw, T. G., Oil Corp., Fort Worth	61,611.34	86,175.20
Sheldon, C. P., Electra	12,648.02	20,648.65
Sneed Royalty Co., Tulsa, Okla.	1,113.40	1,216.40
Sneed Royalty Co., Tulsa, Okla.	2,062.82	2,615.64
Stock, H. I., Cisco	2,636.04	4,102.41
Saxet Oil Co., Houston	404,515.03	364,381.20
Skinner, E. W., Oil Co., Saratoga	4,160.06	5,156.52
Southern Petroleum Exploration, Inc., Sistersville, W. Va.	21,553.40	30,429.78
South Texas Petroleum Co., Houston	207,448.67	359,622.97
St. Mary's Oil & Gas Co., St. Mary's, W. Va.	44,624.76	54,678.01
Syndicate Oil Corp., Rochester, N. Y.	961.56	1,754.75
Simmons, C. E., Fort Worth	.....	1,940.75
Smith, Hattie E., Burkburnett (9-30-29)	303.39	439.82
Smith, Hattie E., Burkburnett (6-30-29)	303.80	389.13
Surf Oil Co., Abilene (9-30-29)	16,057.77	22,673.53
Staley, J. A., Wichita Falls	1,994.56	3,119.57
Stovall, E. C., Graham	3,707.38	5,790.74
Sun Oil Co., Dallas	1,235,373.46	1,443,411.89
Simms Oil Co., Dallas	1,101,038.18	1,105,389.39
Samuel Howard et al, Shawnee, Okla.	216.82	237.15
Ski-Tex Petroleum Co., Amarillo	25,291.47	31,530.66
Schoolfield, R. E., Oklahoma City, Okla.	306.28	452.85
Scarborough, W. A., Burkburnett	1,517.18	2,391.35
Sullivan, M. J., Kansas City, Mo.	679.62	1,001.42
Summerfield Oil Co., Tulsa, Okla.	231.31	366.55
Swanner, John L., Wichita Falls	2,066.26	3,306.01
Spencer, H. H., Co., Burkburnett	176.39	289.39
Selby Oil & Gas Co., Tulsa, Okla.	5,477.07	9,876.32
Smith, W. B., Trustee, Eastland	508.17	788.11
Schleicher Oil Co., Beaumont	934.44	1,227.64
Spring Creek Oil Co., Amarillo	3,478.65	4,217.03
Sessions, I. P., Rockdale	574.41	839.87
Scarborough & Smith, Burkburnett	207.73	245.39
Scott & Britton, Graham	61.80	92.70
Shasta Oil Co., Wichita Falls	494.95	746.27
Saigh, N. A., San Antonio	1,204.62	1,626.24
Stock, Anna B., Cisco (6-30-29)	81.12	104.64
Simpson-Fell Oil Co.-Hales & Gant, Ardmore, Okla.	7,220.65	6,498.59
Shamrock Oil & Gas Co., Amarillo	324,798.14	444,627.55
South Shore Oil Co., Houston	8,781.69	10,374.30
Smith, R. E., Houston	25,272.39	30,164.56
Sprague Oil Co., Ardmore, Okla.	16,199.49	11,887.00
Sink, Joel, Corsicana	129.00	204.00
Shertzer Brothers, Dewey, Okla.	6,067.67	10,057.29
Scott & Walker, Albany	6,018.72	8,699.12
Sheldon, W. J., Electra	2,885.53	4,761.91
Simpson-Fell Oil Co. and W. T. Hales, Ardmore, Okla.	13,346.55	19,775.34
Somerset Oil Co., Easthampton, Mass.	58.00	68.17
Stump & Co. and Venmex Oil Co., Wichita Falls	5,252.10	8,403.31
Sircovich & Thomas, Houston	696.16	696.16
Seybert Brothers, Mooringsport, La.	3,676.81	5,984.42
Smor Oil Co., Graham	786.40	1,179.60
Schlaffke, Edward, Electra	85.27	127.92
Shatton, Edward F., Pioneer	335.97	437.71
Salado Oil Co., San Antonio	1,577.08	1,862.99
Star Drilling Co., Wichita Falls	24,465.14	41,468.97
Smith & Bynum, Amarillo	2,103.34	2,654.30
Smith, Mrs. James L., Amarillo	6,736.65	8,938.33
Strelsky & Hefley, Cameron	377.81	578.06

(Continued on next page)

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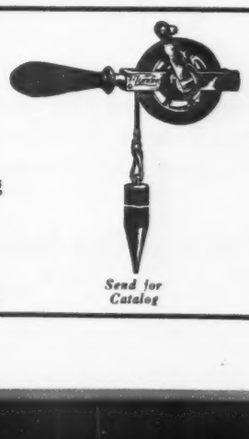

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Name and address—	Barrels	Value
Steed & Gause, Wichita Falls	376.52	583.60
Swenson, E. P., Strawn	516.95	920.88
Standard Oil Land & Leasing Co., Electra	255.71	421.90
Shattuck, Mrs. R. H., Dallas	2,845.58	4,268.35
Stella Oil Co., Beaumont	13,596.30	17,675.18
Summit Oil & Refining Co., Amarillo	3,110.15	3,930.29
Shappell Oil Co., Wichita Falls	56,796.63	91,039.57
Smith, McIntosh & Thomas, Cameron	1,275.19	1,870.19
Smith, McIntosh & Thomas, Cameron	588.53	746.70
Schaffner, E. N., et al, Cross Plains	1,164.62	1,552.05
Somerset Oil Co., Somerset	1,081.05	1,285.43
Somerset Crude Oil & Refining Co., Somerset	2,651.11	3,253.03
Slicker, Homer, Cisco	1,568.64	2,283.00
Stock, Anna B., Cisco	255.70	374.70
Sand Creek Oil Co., Amarillo	3,798.00	4,766.79
Saratoga Oil Co., Wichita Falls	608.16	994.54
Simmons, T. K., Tulsa, Okla.	1,953.77	2,901.20
Smith, Mrs. Hattie E., Burkburnett	303.78	438.04
Southern Crude Oil Purchasing Co., Fort Worth	3,178,536.81	2,803,442.64
Schaffner-Wilson et al, Wichita Falls	1,913.65	3,429.54
Snowden & McSweeny Co., New York, N. Y.	61,396.96	96,936.63
S. & W. Oil Co., Amarillo	10,494.96	11,039.85
Smith, Levi, Texon	572.96	998.35
Smith, Levi, & Shaffer, J. C., Texon	147.09	183.87
Smith, Levi, & Hyer, Fred, Texon	1,055.52	1,847.37
Smith, Levi, et al, Texon	50,021.61	90,388.00
Sandefer-Atkinson-Daniel Oil Corp., Breckenridge	3,262.97	5,041.13
Shoup, O. H., Jr., Colorado Springs, Colo.	2,095.88	3,434.12
Snider, O. W., Wichita Falls	1,294.42	2,217.60
Speed, C. D., Corsicana	127.66	197.86
Savoy Oil Co., Tulsa, Okla.	14,440.40	12,458.67
Skelly Oil Co., Tulsa, Okla.	1,181,791.52	1,468,763.76
Smith, E. L., Oil Co., Inc., Mexia	270,563.65	418,225.55
Stroube & Stroube, Corsicana	23,921.71	35,740.21
Seaboard Oil & Gas Co. of Texas, Wichita Falls	32,730.74	53,903.56
Staley, Wynne & Co., Wichita Falls	235,734.38	337,559.84
States Oil Corp., Eastland	35,170.75	55,709.13
Shell Petroleum Corp., St. Louis, Mo.	2,501,841.07	2,564,826.12
Schermerhorn Oil Co., Minneapolis, Minn.	274,461.16	233,931.61
Stidham & Thrasher, Electra	684.92	808.64
Schermerhorn-Winton Co., Minneapolis, Minn.	36,969.36	36,411.88
Stekol, Harry, Tulsa, Okla.	5,821.37	6,391.33
Shaw Oil Co., Wichita Falls	65,229.41	99,607.34
Sheffield Oil Co., Beaumont	5,077.89	6,601.29
Steele, Charles F., Rosston, Ark.	222.17	322.14
Steele, Charles F., Rosston, Ark. (9-30-29)	322.67	467.86
Steele, Charles F., Rosston, Ark. (6-30-29)	463.36	612.19
Supreme Oil Co., Orange	2,432.05	3,162.24
Superior Oil Producing Co., Tulsa, Okla.	2,005.37	3,611.17
Shallow Sand Oil Co., Fort Worth	406.64	573.36
Scott & Nance, Graham	3,242.13	5,031.12
T		
Trinity Townsite Co., Orange	759.52	1,177.70
Tucker Oil Co., Wichita Falls	82,073.62	122,347.47
Tidal Oil Co., Tulsa, Okla.	178,707.81	198,378.98
Texas Petroleum Co., San Antonio	36,403.70	48,345.10
Tex-Cal Oil Co., Brownwood	5,577.24	7,287.35
Texas Unity Oil Co., Dallas	466.43	784.88
Tripplehorn, J. W. and D. R., Fort Worth	3,417.18	5,630.64
Transcontinental Oil Co., Tulsa, Okla.	16,393.13	25,108.28
Transcontinental Oil Co., Tulsa, Okla.	2,942,594.63	2,725,743.67
Timms-Fogarty Oil Corp., Amarillo	604.00	662.72
Talbot & Markle, Houston	9,849.31	11,917.67
Thomson, F. L., San Antonio	50,009.91	62,064.72
Turman, L. C., Fort Worth	65,658.29	66,412.20
Towns, M. K., Luling	21,712.27	27,140.34
Texas Pacific Coal & Oil Co., Thurber	307,818.83	386,844.32
Taylor-Link Oil Co., Houston	94,829.74	90,448.69
Tower & McKanna, Inc., Wichita Falls	36,517.12	57,636.72
Texas Pacific Coal & Oil Co., Thurber	65,877.06	104,779.95
Thomas, J. Elmer, Fort Worth	2,992.53	4,930.14
Teatsorth, L., et al, Eastland	1,781.50	3,163.37
Teatsorth, L., et al, Nos. 2 and 3, Eastland	1,595.38	2,680.89
Tharp, Paul A., Ponca City, Okla.	10,706.50	17,463.36
Tripplehorn, D. R., Pampa	6,626.81	10,581.51
Theis Oil Co., Sour Lake	4,442.29	5,774.98
Timms-Robinson Oil Corp., Amarillo	1,317.00	1,843.47
Timms-Dietsch Oil Corp., Amarillo	5,560.00	8,678.15
Timms, L. W., Oil Corp., Amarillo	6,463.00	10,011.24
Travelers Oil Co., Amarillo	13,572.70	17,240.87
Talley & Irick, Shreveport, La.	168.00	226.80
Tillman, J. W., Humble	323.49	377.17
Thompson, J. E. Humble	609.00	767.00
Transcontinental Oil Co., Tulsa, Okla.	17,115.40	25,286.85
Tegler, F. E., San Antonio	468.12	561.74
Triangle Oil & Gas Co., Rockdale	1,091.30	1,607.19
Texas Petroleum Development Co., Cameron	4,902.76	7,349.09
Trimont Petroleum Co., Shreveport, La.	6,986.17	12,628.15
Thoil Oil Co., Beaumont	3,895.10	6,904.75
Tucker, W. B., Dallas (9-30-29)	455.80	638.12
Tucker, W. B., Dallas	40.98	561.25
Thaxton, W. H., Estate, Austin	314.20	487.01
Tillery, L. J., Oil Co., Inc., Beaumont	16,556.36	21,779.48
Tillery, L. J., Oil Co., Inc., Beaumont (9-30-29)	6,581.96	8,578.70
Texon Oil & Land Co., Big Lake	166,852.00	129,053.06
Taylor-Sibley Syndicate, Dallas	2,428.37	4,003.59
Trinity Production Co., Wichita Falls	230.53	376.67
Texota Petroleum Co., Electra	300.84	523.57
Triangle Petroleum Co., Inc., Fort Worth	614.29	983.55
Timblin, W. E., Wichita Falls	160.81	263.20
Thomas, J. A., Burkburnett	2,068.20	3,845.03
Staley, J. L., & Co., Wichita Falls	3,880.91	5,973.67
Tannehill, L. B., Albany	57,754.49	91,301.24
Treat, E. M., Oil & Gas Co., Pittsburgh, Pa.	1,837.76	2,865.07
Texas Fidelity Oil Corp., Fort Worth	8,016.87	14,183.57
Teci Production Co., Breckenridge	2,122.04	3,236.43
Thomasson, E. M., & Co., Inc., Denver, Colo.	1,333.94	1,038.88
Texas Consolidated Oil Co., San Francisco, Calif.	14,808.67	23,586.80
Turman Oil Co., Tulsa, Okla.	22,671.28	37,089.86
Townsite Oil Co., Olney	225.64	304.93
Tidwell, H. L., Trustee, Graham	1,139.46	1,748.25
Tidwell, R. V., Trustee, Graham	4,694.09	7,475.50
Texas Company, The, Houston	4,883,816.92	7,082,510.23
Texas Electric Co., The, Newark, Ohio	277.78	465.02
U		
United Producers Co., Wichita Falls	35,288.35	57,215.93
United Oil Corp., Wichita Falls	1,518.41	2,485.20
Underwood Drilling Co. (U. & C. lease), Wichita Falls	3,498.04	5,596.87
Underwood Drilling Co. (U. C. Ward lease), Wichita Falls	1,858.67	2,887.65
Underwood Drilling Co. (A. Ward lease), Wichita Falls	3,613.26	5,654.18
Underwood Drilling Co. (Perkins lease), Wichita Falls	4,025.32	6,228.66
Underwood Drilling Co. (Erwin lease), Wichita Falls	1,329.64	1,998.07
United Royalties Corp., Wichita Falls	677.07	1,184.88
Union Producing Co., Houston	106,222.92	81,449.81
Ungren, Frazier, Gibson & Johnson, Putnam (3-31-29)	253.00	347.50
Ungren, Frazier, Forster & Townsend, Putnam (3-31-29)	431.00	575.69
Ungren, Frazier, Gibson & Johnson, Putnam (6-30-29)	1,153.66	1,621.68
Ungren & Frazier et al, Putnam (9-30-29)	1,239.20	1,929.66
Ungren & Frazier et al, Putnam	918.33	1,475.56
Ungren & Frazier, Putnam (3-31-29)	481.00	583.79
Ungren & Frazier, Putnam (6-30-29)	424.33	531.37

(Continued on next page)

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Name and address—	Barrels	Value
Ungren & Frazier, Putnam (9-30-29)	146.66	204.31
Ungren & Frazier, Putnam	76.50	103.24
Upland Oil Co., Pampa	14,325.98	20,741.73
Unice & Carpenter, Houston	1,738.00	2,548.41
Unity Oil Co., Beaumont	17,660.00	22,979.00
Union Production Co., Rockdale	3,942.16	5,768.69
Union Oil & Mining Co., Tulsa, Okla.	10,882.52	15,561.26
Usona Production Co., Dallas	831.28	1,213.67
V		
Veleric, Inc., San Antonio	496.51	645.47
Val Verde Oil Co., Del Rio	1,095.00	1,369.67
Venmex Oil Co. of Texas, Wichita Falls	77,787.36	134,713.98
Virginia Oil Association, Inc., Fort Worth	2,395.59	3,956.82
Van Wormer, F. E., Wichita Falls	1,361.06	2,279.57
Van Cleave Trust, Baltimore, Md.	675.20	1,063.93
Victor Co., San Antonio	2,608.36	3,260.46
Vacuum Oil Co., Houston	59,584.30	96,441.32
W		
Weldon Oil Co., Saratoga	14,368.32	15,671.77
Wilson Drilling Co., Rathke lease, Wichita Falls	2,958.07	4,859.00
Wilson Drilling Co., Comet lease, Wichita Falls	2,895.83	4,749.83
Wilson Drilling Co., K.K.A.&B. leases, Wichita Falls	2,372.24	3,884.97
Woodburn Oil Corp., Dallas	3,578.92	5,668.82
Wilson, Lee, Estate, et al, Wichita Falls	5,093.17	8,065.56
Wichita Production Co., Wichita Falls	8,999.89	14,138.70
Wallace, Dr. Charles William and wife, Wichita Falls	33,559.99	55,593.71
Wampem Oil Corp. of Texas, Dallas	382.11	592.27
White, James H., Wichita Falls	8,613.29	14,020.10
Whitehill Oil Corp., The, Tulsa, Okla.	3,549.03	5,780.43
Weaver & Pois, Wichita Falls	2,517.48	3,961.21
Wise & Porterfield, Graham	4,762.77	7,390.11
Wise & Jackson, Sapulpa, Okla.	6,919.02	10,522.67
Worth Oil Co., Wichita Falls	2,003.96	3,125.73
Wolf, A. T., Wichita Falls	2,570.49	4,088.85
Williams, Burt, Wichita Falls	1,136.93	1,591.69
Williams, Burt, Wichita Falls (9-30-29)	695.08	964.42
Weiler, H. J., Wichita Falls	328.23	515.32
Wilson Drilling Co., K. K. "C" lease, Wichita Falls	147.02	230.20
Witcher, W. C., et al, Wichita Falls	347.10	570.12
Witcher, Annie L., guardian, Wichita Falls	3,483.54	5,994.11
White & Duncan, Wichita Falls	6,877.56	11,168.83
Wills, O. C., Burkburnett	1,034.58	1,558.95
Waggoner Refining Co., Inc., Electra	344,224.15	507,891.12
Waggoner, E. P., & Kolp, C. F., Electra	11,226.37	17,050.32
Wilbarger Oil Co., Wichita Falls	1,662.08	2,178.94
Western Oil Sales Corp., Wichita Falls	1,442.25	2,352.32
White Eagle Oil & Refining Co., Kansas City, Mo.	241,048.00	345,445.00
Warner-Quinlan Co. of Texas, Dallas	199,907.24	184,759.19
Weiler, J. G., et al, Cross Plains	1,817.52	3,078.74
Weister, E. P., Tulsa, Okla.	3,357.43	5,094.62
Why Not Oil Co., Mexia	6,213.00	10,015.66
Washoma Petroleum Co., Enid, Okla.	11,482.35	18,945.87
Washoma Petroleum Co., Enid, Okla. (9-30-29)	9,644.03	16,339.05
Wilcox, H. F., Oil & Gas Co., Tulsa, Okla.	94,948.27	148,384.83
Weekly Oil Corp., Fort Worth	4,553.01	3,832.84
World Oil Co., Inc., Fort Worth	7,624.10	6,803.95
Wilder, Jack H., Rice	709.27	1,063.90
Walter, T. J., Corsicana	48.50	65.48
Webb, J. R., Corsicana	169.71	295.06
Webb & Bryant, Corsicana	379.46	379.46
Wheelock & Collins, Corsicana	11,933.24	19,625.79
Witherspoon Oil Co. and C. L. Witherspoon, San Antonio	12,249.03	18,404.38
Weller, C. A., Brownwood	91.22	127.00
Woodley Petroleum Co., Shreveport, La.	15,753.66	28,080.93
Wakefield, M. E., et al, Cross Plains	104.26	172.03
Whiteside, J. E., Brownwood	1,503.19	1,878.98
Woods, C. D. and C. C., Ranger	197.06	304.21
Whaley Mineral & Realty Trust, Fort Worth	2,061.26	3,160.34
West, C. K., Breckenridge	5,681.94	8,448.56
Williams, J. H., Dallas	4,329.61	6,796.74
Williams, J. H., Dallas	4,794.64	7,491.59
Westheimer & Daube, Ardmore, Okla.	1,591.36	2,294.03
Walker, B. S., Estate, Fort Worth	797.23	1,139.83
Woods, C. D. and C. C., Ranger	672.17	974.68
Walker, A. C., Albany	3,113.59	4,901.62
Wentz, L. H., Ponca City, Okla.	17,735.70	15,127.24
Woodson Oil Co., Woodson	997.23	1,442.58
Woods & Bennett, Humble	4,654.00	6,050.20
Webb Oil Co., Humble	4,324.71	5,622.13
West Production Co., Houston	10,498.41	13,601.95
West, Mrs. Bessie M., Houston	1,548.00	2,012.40
Williams & Williams, Amarillo	792.61	752.98
Ward Oil Corp., Ardmore, Okla.	173,343.20	149,121.98
Witherspoon Refining Co., San Antonio	28,911.83	27,860.83
Wilson Drilling Co. (Snedeker lease), Wichita Falls	104.32	155.05
Wilson-Broach Co., Beaumont	13,037.80	16,949.15
Woody, W. C., Wichita Falls	4,559.85	7,704.78
Wahpoo Oil Co., Rockdale	1,314.56	2,011.28
Wills Oil Co., Rockdale	1,237.73	1,844.21
Wallace & Emrick, Minerva	338.71	441.72
Wood, Benton, Lesh & McCall, Nocona	5,283.54	5,019.37
West, J. H., Cisco	6,168.61	9,602.40
Wolf, D. L., Orth	462.60	693.80
Wilkins, L. A., Burkburnett	3,389.29	5,357.00
Y		
Yount Lee Oil Co., Beaumont	2,243,068.56	2,787,433.91
Young Brothers & Alexander, Fort Worth	17,874.02	31,637.56
Z		
Zadie Bell Oil Co., Fort Worth	517.25	888.90

INTERNATIONAL CO. OUTPUT

CHATHAM, Ontario, Mar. 15.—Crude oil production of the International Petroleum Co. in Peru and Colombia in 1929 totaled 31,205,664 bbls., an increase of 1,806,267 bbls. over 1928. The daily average during the year was 85,495 bbls. compared with 80,326 bbls. Shipments from the two countries by the International Petroleum Co. amounted to 23,474,424 bbls. in 1929, an increase of 1,661,689 bbls., with a daily average of 64,313 bbls. compared with 59,598 bbls. Colombian production in 1929 increased 488,871 bbls., reaching a total of 20,384,548 bbls.; while shipments amounted to 18,600,481 bbls., a gain of 610,977 bbls. In Peru, production amounted to 10,821,116 bbls., or 1,317,396 bbls. greater; and shipments were 4,873,943 bbls., a gain of 1,050,712 bbls.

SCOUTS SELECT SAN ANTONIO

FORT WORTH, Tex., Mar. 15.—An executive meeting of the National Oil Scouts Association was held at the Texas Hotel, and the 1930 convention was voted to be held on May 19 and 20 at San Antonio, Tex., at the Gunter Hotel. This will be the second time that San Antonio has drawn the oil scouts, as the 1926 convention convened in that city.

Ford Turner, president of the association, appointed L. S. McGee, scout for the Humble Oil & Refining Co., San Antonio, as chairman of convention arrangements. Mr. McGee presented San Antonio's invitation to the scouts for 1930.

TORSION BALANCE
and
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and
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Report by
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Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS
Pipe Line Statement for January

Runs

Company—	Month (bbls.)	Dly. av. (bbls.)
Prairie P. L. Co.*	4,247,000	137,000
Gulf P. L. Co.	1,684,338	54,333
Texas P. L. Co.	784,220	25,297
Empire P. L. Co.	1,749,845	56,447
Magnolia P. L. Co.	1,925,246	62,105
Cosden P. L. Co.	667,159	21,521
Sinclair P. L. Co.*	3,193,000	103,000
Oklahoma P. L. Co.	3,429,885	110,641
Other lines*	6,395,300	206,300
Total January	24,075,993	776,644
Total December	23,650,520	762,920
Difference	425,473	13,724

Shipments

Prairie P. L. Co.†	6,257,644	201,859
Gulf P. L. Co.	1,955,518	63,081
Texas P. L. Co.	1,151,267	37,138
Empire P. L. Co.	1,373,119	44,294
Magnolia P. L. Co.	2,041,029	65,840
Cosden P. L. Co.	786,124	25,359
Sinclair P. L. Co.†	3,465,366	111,786
Oklahoma P. L. Co.	3,552,327	114,591
Other lines*	6,696,000	216,000
Total January	27,278,394	879,948
Total December	27,079,969	873,546
Difference	198,425	6,402

Stocks

Prairie O. & G. Co.*	40,194,000
Gulf P. L. and Gypsy Oil Co.	9,667,678
The Texas Company	6,658,163
Empire P. L. Co.	6,562,069
Cosden P. L. Co.	3,683,240
Sinclair Crude Oil Pur. Co.	19,678,000
Magnolia Pet. Co.	7,577,975
Oklahoma P. L. Co.	3,554,219
Carter Oil Co.	9,271,431
Other lines*	22,511,000
Total January	129,357,775
Total December	130,257,108
Difference	899,332

*Estimated. †Prairie and Sinclair shipments include Texas crude oil.

EASTERN PIPE LINE REPORT FOR MONTH OF JANUARY

Runs from Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky, Indiana and Michigan for December and January:

	Dec., '22	Jan., '30
Nat. Transit	451,222.47	439,729.00
S. W. Pa. P. L.	46,078.43	90,898.30
Eureka P. L.	364,779.55	367,547.89
Buckeye P. L. (Macksburg)	352,447.91	358,430.62
Buckeye P. L. (Cleveland)	9,993.96	10,647.91
Buckeye P. L. (Lima, etc.)	90,018.07	85,676.96
Indiana P. L.	4,720.28	3,482.83
Cumberland P. L.	189,528.30	182,382.51
N. Y. Transit	34,104.38	37,659.17
Tidewater P. L.	25,495.45	24,115.65
Pure Oil	277,181.96	305,214.10
Paragon Dev.	11,059.01	10,541.45
Stoll Oil Ref.	4,362.88	3,899.80
Bradford Trans.	410,395.25	432,916.17
Total	2,311,387.90	2,353,143.36
Daily average	74,560.90	75,907.85

Note—Paragon Refining Co. had other receipts of 156,022.98 bbls. Paragon Development had other receipts of 194.62 bbls. Indian Refining Co. had other receipts of 448,345.12 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for December and January:

	Dec., '29	Jan., '30
Nat. Transit	596,904.16	566,559.42
S. W. Pa. P. L.	328,907.79	292,868.36
Eureka P. L.	217,339.67	261,587.52
Buckeye P. L. (Macksburg)	209,875.38	188,277.50
Buckeye P. L. (Cleveland)	1,700.86	2,188.64
Buckeye P. L. (Lima, etc.)	895,636.25	900,037.30
Indiana P. L.	1,426,181.84	1,549,996.22
Cumberland P. L.	222,397.86	238,821.39
Southern P. L.	65,068.35	62,190.22
N. Y. Transit	164,584.79	189,945.65
Northern P. L.	201,269.03	196,645.06
Tidewater P. L.	510,717.25	392,513.08
Pure Oil	281,593.22	270,432.99
Paragon Ref.	172,635.39	157,944.28
Indian Ref.	.....	461,663.58
Paragon Dev.	10,374.82	10,643.37
Bradford Trans.	468,781.60	486,905.56
Tuscarora Oil	.....	517,121.55
Total	5,773,978.26	6,746,341.69
Daily average	186,257.36	217,623.92

Indian Refining Co. reported other deliveries of 461,663.58 bbls.

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky and Indiana at the close of December and January:

	Dec., '29	Jan., '30
Nat. Transit	703,855.97	787,014.24
S. W. Pa. P. L.	531,541.47	511,042.95
Eureka P. L.	1,514,703.17	1,427,435.53
Buckeye P. L. (Macksburg)	476,862.16	609,936.03
Buckeye P. L. (Cleveland)	70,466.79	85,063.78
Buckeye P. L. (Lima, etc.)	4,286,296.85	4,764,964.92
Indiana P. L.	652,701.92	742,902.49
Cumberland P. L.	523,373.23	470,501.33
Southern P. L.	323,184.71	316,573.11
N. Y. Transit	216,820.01	310,237.52
Northern P. L.	437,683.50	569,978.67
Tidewater P. L.	868,271.09	915,732.49
Pure Oil	22,924.46	64,343.78
Paragon Ref.	31,470.68	29,271.88
Indian Ref.	156,562.07	142,934.08
Paragon Dev.	6,037.00	6,142.46
Tuscarora	267,197.45	266,285.45
Bradford Trans.	164,000.93	199,625.21
Total	11,253,953.46	12,220,045.93
Increase	.....	966,092.47

Grades of Oil

The following table shows the amount of the different grades of oil held by the Eastern Pipe Lines at the close of December and January showing gross stocks of the above fields:

	Dec., 1929	Jan., 1930
Penna.	3,454,908.10	3,617,731.86
Lima	628,606.65	687,915.50
Kentucky	625,239.17	540,503.40
Mid-Continent	6,488,845.03	7,267,468.33
Illinois	44,576.48	55,156.42
Michigan	11,778.03	51,270.42
Total	11,253,953.46	12,220,045.93

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil field for the past four years:

	1927	1928	1929	1930
Jan.	56,209	52,904	51,749	75,907
Feb.	61,298	57,002	51,833	.....
Mar.	63,247	57,485	54,252	.....
Apr.	60,927	56,812	58,444	.....
May	60,284	62,067	59,902	.....
June	62,757	58,230	58,833	.....
July	58,674	57,144	66,087	.....
Aug.	60,870	57,745	66,087	.....
Sept.	60,285	53,487	67,315	.....
Oct.	147,080	58,100	76,093	.....
Nov.	57,275	53,865	74,831	.....
Dec.	53,089	52,025	74,561	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1927	1928	1929	1930
Jan.	141,227	146,465	165,721	217,623
Feb.	138,534	167,368	159,387	.....
Mar.	133,777	158,883	161,474	.....
Apr.	140,227	172,935	169,737	.....
May	144,594	180,559	184,281	.....
June	149,772	188,024	185,404	.....
July	151,850	189,470	194,763	.....
Aug.	188,653	192,853	184,946	.....
Sept.	144,213	194,138	201,214	.....
Oct.	147,036	176,000	191,367	.....
Nov.	150,975	176,898	202,743	.....
Dec.	144,504	173,572	186,257	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1928	1929	1930
Jan.	12,276,710	7,596,564	12,220,045
Feb.	12,180,419	8,738,835	.....
Mar.	12,239,725	9,002,058	.....
Apr.	11,740,125	8,978,172	.....
May	11,602,468	8,903,560	.....
June	11,287,678	8,921,275	.....
July	10,819,331	9,211,595	.....
Aug.	10,236,743	9,440,643	.....
Sept.	9,660,910	9,443,067	.....
Oct.	9,229,709	9,441,101	.....
Nov.	8,366,553	9,868,538	.....
Dec.	7,539,555	11,253,953	.....

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Feb. 1	2,368,730.24
Runs from wells	519,272.30
Other receipts	343,257.16
Regular deliveries	474,902.13
Other deliveries	449,109.92

The amount of Illinois oil run by the Tide Water Pipe Co. in January was 24,115.65 bbls. Deliveries were 23,391.80. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1930—	Runs	Deliveries
Jan.	543,387.95	498,293.93
1929—		
Jan.	570,727.38	545,084.66
Feb.	517,320.17	503,387.70
Mar.	728,319.67	586,049.60
Apr.	515,374.27	654,297.96
May	608,981.60	673,812.83
June	568,454.70	818,845.97
July	611,106.79	828,159.44
Aug.	625,351.99	746,425.06
Sept.	582,457.66	669,947.72
Oct.	662,302.83	558,558.68
Nov.	565,108.75	427,064.63

Tide Water Pipe Co., Ltd., also delivered in January, 99,499.88 bbls. Oklahoma oil.

Franklin Pipe Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

1928—	Runs	Shipments	Stocks
December	3,053.60	3,167.53	19,426.99
1929—			
January	2,099.90	.....	19,313.06
February	2,469.47	6,873.20	17,009.23
March	3,330.82	3,595.01	16,745.04
April	4,864.07	4,243.59	17,365.52
May	2,688.59	2,455.54	17,598.57
July	2,941.62	3,329.35	4,503.48
August	2,742.72	2,889.47	4,356.74
September	2,925.71	2,897.34	4,385.11
October	3,083.59	1,754.94	5,713.76

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF COAST PORTS

Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS					
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
April	16,667	....	32,333	13,233	2,234	64,467	.....	.....	.....	.....	7,333	65,200
May	16,226	2,416	31,326	10,806	2,129	62,903	.....	.....	.....	.....	....	62,903
June	14,866	3,167	23,100	10,300	6,100	57,533	.....	.....	.....	.....	....	57,533
July	15,387	4,806	34,290	19,388	2,452	76,323	.....	.....	.....	.....	4,161	80,484
August	20,389	3,129	35,226	18,903	5,548	83,194	.....	.....	.....	.....	12,161	95,355
September	19,433	....	31,834	11,900	6,200	69,367	.....	.....	.....	.....	4,800	74,167
October	9,065	4,677	42,065	12,000	9,677	77,484	.....	.....	.....	.....	4,097	81,581
November	18,900	3,167	41,667	14,699	3,767	82,200	.....	.....	.....	.....	2,400	84,600
December	12,968	....	46,129	13,613	7,225	79,935	.....	.....	.....	.....	2,335	82,290
January	18,484	1,936	34,257	22,323	9,516	86,516	.....	.....	.....	.....	2,258	88,774

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS						GULF COAST PORTS					
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
April	19,733	18,367	137,233	50,267	22,567	248,167	6,867	25,066	10,367	1,500	43,800	291,967
May	29,806	19,258	138,000	49,336	22,322	259,322	6,677	26,323	3,000	1,323	37,323	296,645
June	31,433	8,667	134,600	42,967	18,300	235,967	8,600	22,633	11,800	2,033	45,066	281,033
July	40,097	15,129	111,677	43,420	31,516	241,839	4,774	12,097	9,616	161	26,648	268,387
August	33,387	14,355	162,644	30,936	20,355	261,677	4,226	12,742	....	1,484	18,452	280,129
September	32,967	9,000	136,633	54,300	32,900	265,800	6,900	22,900	5,367	1,333	36,500	302,300
October	39,936	10,519	137,096	38,160	38,644	264,355	6,613	13,388	11,064	4,419	35,484	299,839
November	23,633	18,900	125,200	41,100	28,200	237,033	2,233	12,533	6,667	2,500	23,933	260,966
December	29,774	15,387	133,742	31,000	23,775	233,678	5,548	16,484	6,613	1,774	30,419	264,097
January	21,161	10,678	134,581	38,677	43,806	248,903	4,322	6,453	....	548	11,323	260,226

GROSS PRODUCTION OF CRUDE OIL IN THE UNITED STATES FOR 12 MONTHS

(In Barrels of 42 Gallons)

1929-30—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
February:	Month	22,300,707	20,464,164	20,816,209	2,557,968	2,154,194	1,569,930	1,965,656	3,113,000	74,941,828
	Daily average	796,454	730,863	743,484	91,356	76,936	56,068	70,202	111,184	2,676,494
March:	Month	24,324,729	20,838,262	24,358,593	2,951,076	2,303,734	1,756,153	2,195,823	3,586,000	82,314,369
	Daily average	784,669	672,202	785,761	95,196	74,314	56,650	70,838	115,677	2,655,302
April:	Month	23,295,060	20,235,390	23,493,097	3,112,740	2,188,680	1,702,497	2,085,030	3,524,000	79,636,494
	Daily average	776,502	674,513	783,103	103,758	72,956	56,750	69,501	117,467	2,654,550
May:	Month	24,053,351	21,345,453	24,489,101	3,665,099	2,220,158	1,713,261	2,252,522	3,879,000	83,617,945
	Daily average	775,915	688,563	789,965	118,229	71,618	55,267	72,262	125,129	2,697,353
June:	Month	24,624,627	20,561,112	24,698,029	3,636,160	2,112,270	1,699,581	2,180,752	3,887,000	83,399,521
	Daily average	820,821	685,371	823,267	121,205	70,337	56,653	72,692	129,567	2,779,984
July:	Month	26,796,627	22,371,925	26,969,989	3,867,157	2,137,047	1,716,488	2,360,836	4,439,000	90,659,069
	Daily average	864,407	721,675	869,997	124,747	68,937	55,370	76,156	143,200	2,924,486
August:	Month	27,233,353	22,429,522	27,491,362	3,816,555	2,086,083	1,764,973	2,478,016	4,363,000	91,662,864
	Daily average	878,495	723,532	886,818	123,115	67,298	56,934	79,936	140,742	2,956,866
September:	Month	26,104,264	21,299,490	26,067,065	3,780,690	1,959,720	1,718,250	2,347,020	4,075,000	87,351,499
	Daily average	870,142	709,983	868,902	126,023	65,324	57,275	78,234	135,917	2,911,716
October:	Month	26,895,160	20,821,646	26,412,167	3,429,468	2,000,027	1,956,326	2,392,952	4,482,000	88,389,746
	Daily average	867,586	671,666	852,004	110,628	64,517	63,107	77,192	141,358	2,851,282
November:	Month	21,317,540	19,193,760	24,896,034	3,430,560	1,911,060	1,853,565	2,350,110	4,029,000	78,981,629
	Daily average	710,585	639,798	829,868	114,352	63,702	61,785	78,337	134,300	2,632,720
December:	Month	21,705,554	20,092,876	25,609,823	3,549,066	1,917,071	1,878,352	2,378,754	4,168,100	81,299,596
	Daily average	700,179	648,156	818,394	114,486	61,841	60,592	76,734	134,455	2,622,568
January:	Month	21,983,242	20,802,984	25,284,352	3,273,197	1,817,685	1,780,969	2,151,090	4,216,000	81,309,519
	Daily average	709,137	671,064	815,624	105,587	58,635	57,451	69,390	136,000	2,622,888
Total 12 months		290,634,214	250,456,584	300,585,820	41,069,726	24,807,729	21,110,345	27,138,861	47,761,100	1,003,564,079

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